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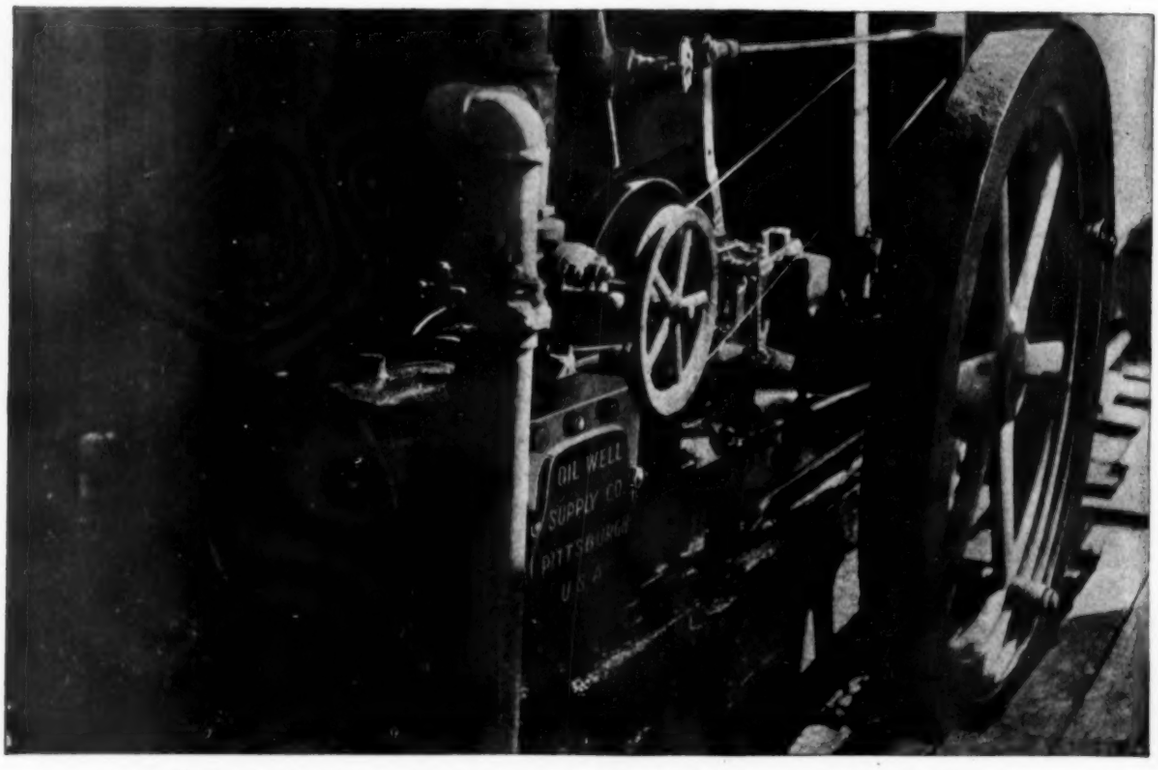

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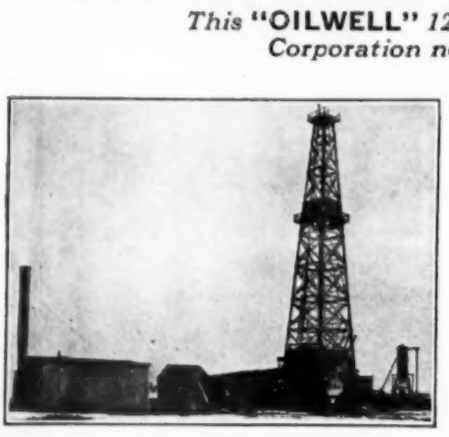

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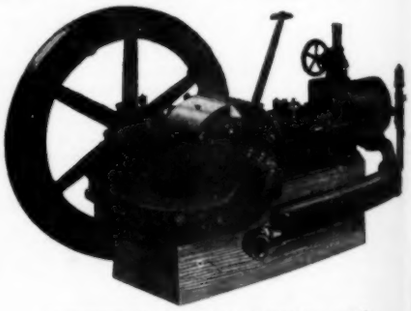

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WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

Say you saw it in The OIL WEEKLY

Panhandle-West Texas Cut Has Weakening Influence

Mid-Continent operators fear general cut immediately with new area threatening cheaper crude gives Texas refiners advantage

By KENT RIDLEY

ALTHOUGH the lower prices posted in West Texas and the Panhandle last week have not extended outside of the sulphur contaminated district, the cut has had an influence which vies with new production threats in Texas and Oklahoma, and the season, in weakening the market.

The situation at Seminole is far from encouraging to operators there who are now expecting a cut, the expectation being furthered by indications of the possibilities of big production in the Little River section, and showings of wells in the Earlsboro pool which indicate that the era of big possibilities there is not over.

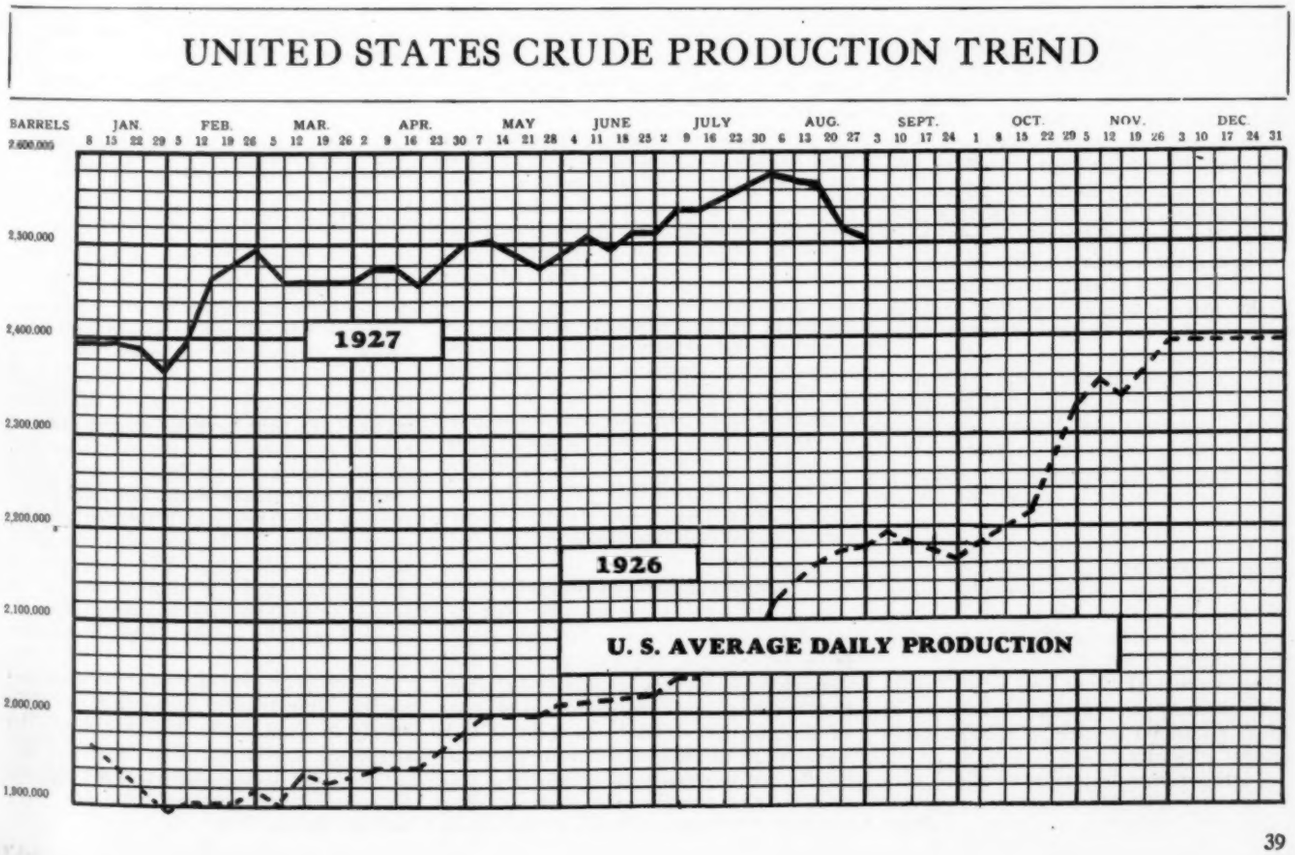
Interest in the Texas situation is centered upon the meeting of operators called by the Humble Oil & Refining Company to be held at Fort Worth on September 2. A letter to Pecos County producers over the signature of W. S. Farish, president of the Humble, urging attendance upon the meeting and an earnest effort toward working out a proration plan, paints a very gloomy picture of possibilities in that area should production not be controlled. The letter tabulates the present potential production of the fields in Crane, Upton, Pecos and Winkler Counties at 240,000 barrels, and estimates that at the present rate of development the fields will be producing 594,000 barrels by December 1. Mr. Farish also estimated the ultimate recovery of the counties named at 599,000,000 barrels.

Other producers interested in the area are said to believe that the estimate of December 1 is too high, although no substitute figures are named. No doubt this question will be one of those aired at the meeting.

Lower priced crude for North Texas refiners gives them an advantage over plants further north, and gives opportunity for small profits where Oklahoma and Kansas plants are barely breaking even. Demand for gasoline is slacking seasonably and the price for that commodity as well as fuel oil is not flattering.

The Mid-Continent crude market, which held up through the past two months of Seminole overproduction only by virture of the fact that the critical field's oil was in strong demand by refineries and that there was sufficient storage and pipe line capacity to handle the oil properly, is considered early this week to be barely hanging on. Oklahoma producers are fearing a price cut within the coming month, and some give the market less than 10 days to break.

The situation summarily is this: Little River pool, the southernmost of the Greater Seminole area producing spots, is scheduled to be another major producing area following the addition of two strong wells late the past week. Ten other wells are due to flow within the next 10 days and 101 rigs are running around the discovery well which has turned out more than 600,000 barrels high gravity oil in nine weeks. The four other Seminole area pools are making 440,000 barrels daily and slated to hold up from indications offered over the past week, such as Prairie Oil & Gas Company's 9600



DETAILS ON CRITICAL FIELDS

Pool—	Oil Wells Completed	Total Initial Production	Initial Per Well	No. Producing Wells	Daily Production Barrels	Daily Production Per Well	Rigs Up	Wells Drilling
Seminole	846	1,134,503	1,341	733	455,369	621	57	451
PANHANDLE—								
Hutchinson County	1,056	535,040	507	987	80,320	81	3	62
Gray County	151	45,095	299	151	10,125	67	6	41
Carson County	173	57,450	332	159	9,300	58	2	13
Wheeler County	39	13,950	358	34	1,620	48	3	13
Totals	1,418	651,535	459	1,331	101,365	76	14	129
WEST TEXAS—								
Church & Fields	128	140,435	1,097	122	86,250*	707	10	23
Gulf-McElroy	42	41,030	977	38	19,140*	504	2	7
Totals	170	181,465	1,067	160	105,390	659	12	30
CALIFORNIA—								
Seal Beach	159	219,302	1,379	97	64,050	660	38	58

*Production partially pinched.

barrels producer on the O. Graham tract inside Earlsboro's proven area.

The beginning of September is a bad time for a comeback in Seminole production, as Mid-Continent buyers see it; just at the time when less demand for motor fuels is ready to turn the refinery outputs.

California's Threat

With a change in the trend of Seminole production comes warning of competition from California, where overproduction still exists, even while big wells are pinched in. Reports from New York Monday stated that tanker rates from the West Coast to Atlantic seaboard had been lowered to 65 cents, a figure which compares with $1.25 in February of this year. Furthermore, tanker rates from the Gulf Coast to Atlantic seaboard have been cut from $1.00 in February to 60 cents at the present time. On this basis Mid-Continent crude of 41 gravity, like that of Seminole selling for $1.38 will have a hard fight moving through transcontinental lines to compete with California and West Texas crude. While a certain stipulated amount of Seminole crude would no doubt be bought at the present or even higher prices, owing to the demand for this special high grade oil, there exists a line of demarcation where a substitution is plausible if the price element is strong enough.

The lowering of tanker rates from California and the Gulf Coast to Atlantic seaboard is the outgrowth of a new policy of some companies handling South American crudes to use their own tankers, which action has resulted in a number of independent shipping lines placing their old tankers on tramp duty.

Again, with these reasons for a potential weakness to the Mid-Continent market at this time is the possibility of Mid-Continent buyers to follow cuts of last week in West Texas and the Panhandle fields.

On August 17 there was a total storage capacity of 18,036,500 barrels in the Seminole area with 5,236,000 barrels under construction.

Of the completed storage there was a total of 5,894,502 barrels empty, but the rate of which this is being filled is shown by the fact that an average of 77,732 barrels of Seminole crude went into tanks daily on the grounds. During the past week this average held to above 70,000 barrels daily.

While old fields of Oklahoma have sacrificed their averages in Seminole's favor to some extent during its flush period, the State is far from being quiet in exploration and development work. At present two fields offer a threat, that of the possibilities of northwestern Logan County and the new Marland pool three miles northeast of the Garber-Covington field. Both of these threats are long time propositions due to the depths at which production is obtained, and neither spot stands out as a probable hazard within the coming six months as far as big production is concerned. Drilling to 5980 feet in the Logan County pool and below 5300 in the Garber area is problem enough in itself to keep these two probable major producing areas out of the ranks of disturbing factors until Seminole is out of the running.

Crude price reductions posted early last week by the principal purchasers in West Texas and the Panhandle have not been followed by lower prices in other fields in the Southwest. The price cut was initiated by Humble Oil & Refining Company, and all buyers met the reduction promptly, adopting Humble's schedules, excepting Gray County. Humble retained its old gravity scale of prices on Gray County crude owing to the high grade of oil produced in this particular section of the Panhandle, but other buyers reduced their schedule to a flat price of 75 cents per barrel for all Panhandle district oil, and 60 cents per barrel for crude produced in Crane, Crockett, Upton, Pecos, and Winkler Counties.

Disrupts Refined Market

Since the Texas Panhandle has developed into an important refining center in recent months, the posting of a new low price of 75 cents per barrel for Panhandle crude places the refiners at a great advantage over Oklahoma and North Texas plant owners. Refiners in the Panhandle are beginning to invade new sections of the country with their gasoline shipments as result of having the cheapest crude to operate on, and are making a profit on their operations while most of the Mid-Continent plant owners are losing money even at present low crude prices owing to U. S. motor gasoline having to sell at 6 cents per gallon and fuel oils between 80 and 90 cents per barrel. Kerosene and distillates have suffered a similar slump in price in recent weeks.

The 60-cent oil market in West Texas does not benefit refiners other than the customers of Humble and the Southern Crude Oil Purchasing Company, who are buying the greater portion of the oil finding a market in this district. This low price was introduced as an effort to forest the tapping of a large flush production now being developed in Pecos, Crane and Winkler Counties, and also because of the difficulty in marketing the oil while so much high gravity sweet oil is available in the Greater Seminole district.

Announcement made last week as to the plans of Magnolia Pipe Line Company to establish a large tank farm near Midland for the storage of West Texas crude until sufficient stocks and current runs justify the building of a trunk line eastward to tie into its Mid-Continent system at Olden, Eastland County, has resulted in a number of applications being made by West Texas operators for a pipe line connection. Magnolia will build about 45 miles of eight-inch line in connecting its Crane County producing leases with the Midland tank farm, and is considering buying some outside oil upon the completion of surplus tanks.

The fault zone in the Mexia-Corsicana district contributed a new oil field August 24 by the semi-completion of W. A. Reiter-Will I. Lewis and Moutray Oil Company's Ward 1, located west of the Mexia field and southwest of the Nigger Creek field, with heavy gas pressure and about 165 barrels of oil from three feet of Woodbine sand pay at 2879 feet. Four offset locations have been made for immediate drilling since this wildcat showed for a producer, and if a flush field develops the usual fault line field drilling rush will follow. An ample market is available for this production, as seven major trunk lines are close at hand.

California Uncertain

The situation in California is almost devoid of a harbinger to tell which way the market trend will be in the immediate future. Production of crude has gradually begun to climb again, however, and if the Seal Beach and Ventura fields keep up the pace they have set during the past two weeks, the oil market may be upset, despite the large production shut in in various parts of the State. The Seal Beach field is still considered a menace and the intensive deep drilling campaign may bring an upset at any time. The deep sand in the Ventura field is also proving to be especially prolific and production has increased greatly in the field during the month.

Independent interests have been experiencing some trouble in finding a steady supply of light crude in California. The supply of heavier oil is more plentiful.

California stocks decreased during the first half of August at about the same rate as during July.

August Production Higher Despite Less Drilling

Oklahoma principal contributor to gain of 942,047 barrels over previous month; fewer wells completed during period

By A. R. McTEE
Staff Representative

PRODUCTION gains for the United States during August totaled 942,047 barrels, an approximate increase of 30,380 barrels in daily average, as compared with July. Unfavorable market reactions seem not to have visibly affected the crude output. Even in the Eastern States section where prices were reduced on August 1, there was a boost of 80,600 barrels for the month. As has been the case since spring, however, Oklahoma with the Seminole district as the major factor, continued to dominate.

The increase in Oklahoma amounted to 1,317,065 barrels, practically all of which came from the Seminole area. The Earlsboro pool is now the leading production spot at Seminole, but figures for the last week in this month gave Earlsboro a drop of 28,900 barrels, indicating that perhaps a decline can be expected from this pool. The rest of Seminole is definitely showing a downward trend.

Other states gaining in output included Kansas, with 97,535 barrels, Louisiana with 108,935 barrels, Mountain States with 31,930 barrels, and Eastern States with 80,600 barrels.

Losses totaling 494,015 barrels were shown from Arkansas, California and Texas, shared as follows: California, 296,515 barrels, Arkansas, 151,860 barrels, and Texas, 45,640 barrels.

Less Drilling

Something of the general attitude within the industry is suggested by the weakness in drilling indicated by a drop of 394 in completions. Ten of the production districts showed less drilling than in July, including California, Oklahoma, and Texas.

The greatest reduction in field activity showed up in Texas where there was a drop of 146 in completions. North and Central West Texas fields were responsible for the sharpest declines. Oklahoma was off 82 completions.

Decreases in completions by states for the entire country were as follows: Texas, 146; Oklahoma, 82; West Virginia, 47; Pennsylvania, 42; Mountain States, 35; California, 26; Kansas, 31; Michigan, 13, and Indiana, 10.

States showing gains in drilling included, Arkansas with nine additional wells; Kentucky, 20; Louisiana, 10; New York, three; Tennessee, seven; and Illinois, two.

The downward trend taken by drilling during the month can be counted on to continue through September and probably into October. Lower crude prices posted throughout West Texas and the Panhandle with proration in the West Texas district, will certainly hold activity there down to the minimum.

Pecos County, the one spot in West Texas where 12,000 and 15,000 barrel wells can be drilled in a very few days, and where such wells are common, is already selling its oil for 60 cents per barrel with a threat of lower postings unless there is an unusual change within the industry.

Other West Texas fields are suffering under the same handicap, and there are few reasons to believe that a sudden change for the better is just around the corner. Certainly the industry will right itself, but within just about as many months as have been required for it to reach the present output.

Unless drilling continues to decline and unless production goes down, fifty cent oil would not be any surprise in West Texas.

Oklahoma

Due to the spectacular rise in production in the Earlsboro pool late in July which carried the daily average yield at a high level through August, Oklahoma produced 26,654,048 barrels of crude during the month, a gain of 1,317,066 barrels over that of July. Earlsboro pool turned out 5,900,075 barrels in August against 3,659,240 barrels in July, and takes almost the entire credit for the Oklahoma increase inasmuch as it brought the state to a gain in total in the face of individual declines in nearly every other field in the State.

The remainder of the Seminole area produced 9,300,775 barrels which represents a loss of 728,035 barrels when compared with the previous month. All of the loss registered by any part of the Seminole area came late in the month as the field generally stood at its peak of 526,500 barrels at the opening of August. From the trend taken in this area near the close of the month the entire area is due for a major drop in production during September.

As a result of the deepening of old wells in settled pools throughout the State to the Wilcox sand there were several historical fields showing an upward trend, though amounting to little comparatitvely, such as Blackwell, Osage, Fox, Stroud and Duncan, Aside from these, however, the fields of the State were undergoing considerable production losses during August, and, except for the sensational rise of Earlsboro, Oklahoma as a whole would have shown a phenomenal decrease in gross output for the month.

While there were 24 counties in Oklahoma active showing completions during August only 17 of these added

U. S. PRODUCTION

The following is the gross estimated production of crude oil in the United States for August, as compiled by The OIL WEEKLY:

Arkansas	3,302,780
California	19,110,725
Eastern States	3,534,000
Kansas	3,271,185
Louisiana	2,255,375
Mountain States	2,683,050
Oklahoma	26,654,045
Texas	18,591,505
Totals	79,402,665
Last Month	78,460,618

PAST TWELVE MONTHS

The record for the past twelve months is an interesting study for comparison purposes, the following table giving field statistics for all states in the Union.

Month—	Completions	Producers	Gas Wells	Failures	Initial Prod.
August, 1926	2,368	1,507	206	655	361,165
September	2,480	1,602	217	661	318,787
October	2,916	1,914	264	738	449,081
November	2,405	1,473	279	653	430,847
December	2,754	1,774	301	679	469,242
January, 1927	1,989	1,257	192	540	315,948
February	1,965	1,215	225	525	284,016
March	1,881	1,190	175	516	321,119
May	1,777	1,060	166	551	400,022
June	1,726	1,049	178	499	359,380
July	2,036	1,219	238	579	486,489
August	1,642	982	207	453	439,735

UNITED STATES FIELD STATISTICS

Following are the completions showing producers, gas wells, failures, and initial production of crude by states, for the month of August, as compiled by The OIL WEEKLY:

Arkansas	27	16	4	7	2,085
California	62	59	1	2	39,080
Illinois	17	6	..	11	234
Indiana	25	11	1	13	868
Kansas	63	25	6	32	3,412
Kentucky	116	77	2	37	3,760
Louisiana	69	33	13	23	14,793
Michigan	22	20	..	2	303
Mountain States	31	21	7	3	5,186
New York	51	48	1	2	201
Ohio	134	66	40	28	1,397
Oklahoma	322	180	37	105	226,033
Pennsylvania	207	175	22	10	737
Tennessee	10	5	..	5	196
Texas	405	214	30	161	141,103
West Virginia	81	26	43	12	347
Totals	1,642	982	207	453	439,735
Last month	2,036	1,219	238	579	486,489

new producers. There were 322 wells completed, including 180 producers of oil, 37 gas wells and 105 failures. The initial production from the producers totaled 226,033 against 272,008 barrels for July when 218 completed wells made oil out of 403 wells finished. This in itself shows a material decline in activity within a 30-day period. Of the 226,033 barrels new oil 130,729 barrels came from Seminole County from 82 producers completed out of 130 wells finished in the month. Of the remainder of the new oil Pottowatomie County, south of Seminole County and including some of the southernmost Seminole production, had 79,699 barrels, which leaves only a nominal amount added from other sections.

At the beginning of the third week in August there were 1259 operations in Oklahoma, including 78 locations, 126 rigs up, 840 wells drilling, 141 wells shutdown and 74 wells completing or just finished. These operations will show the extent of decline in activity when compared with one week previous when there were 1344 operations, including 74 locations, 132 rigs up, 877 wells drilling, 178 shutdown and 83 wells completed.

Kansas produced 3,271,182 barrels of crude during August as compared with 3,173,650 barrels in July, a gain of approximately 98,000 barrels. This State also shows an increase in field activity during the month as can be seen in comparative weeks during the month. At the opening of the third week in August there were 289 operations including 32 locations, 52 rigs up, 122 wells drilling, 70 rigs shutdown and 13 wells completed. At the opening of the previous week there were 280 operations, including 30 locations, 49 rigs up, 128 drilling wells, 62 holes shutdown and 11 wells completed. While the number of wells finished in Kansas fields during August was only 63 as compared with 94 of the previous month, there was an increase of three producers with 28. The initial yield from new wells totaled 3412 barrels against 2112 barrels in July.

Kansas field activity was undergoing a rapid increase near the close of August with a wide campaign of wildcatting ready to start. As a result of recent strikes, such as the Oxford pool, Kansas is expected to come forward with more work in the next few monhts than has been seen in the State for more than a year.

Texas

Further curtailment of field work in the upper part of Texas during August was largely because of adverse market conditions. The older producing areas were particularly inactive. The West Texas district occupied a more prominent position in crude circles as a result of the completion of a number of big wells in Pecos, Crane and Winkler Counties, and the partial completion of a rank wildcat producer in Runnels County. The Mexia-Corsicana district in East Central Texas shared some of the attention by offering a new Woodbine sand field near Mexia.

Completions slumped to a new low level for the year in North Texas districts as a result of operators holding back on their drilling programs for better crude prices. The shutdown movement was particularly adhered too in the Wichita Falls district; Cisco shallow belt in Central West Texas and the Panhandle. The shutdown in Hutchinson County section of the Panhandle was forced on the operators by the refusal of crude buyers to take on new connections, and the surrender of old connections by some of the purchasers.

The shutdown in the Panhandle will remain in effect until crude prices are boosted, as the buyers in this district cut their posted prices to a flat 75 cents per barrel at the well. However, Humble excepted Gray County crude from this low price. The bulk of the wells in the Panhandle are on the pump, and lifting costs will average considerably more than two-thirds of the posted price obtained for the oil produced.

The Muenster shallow field in Cooke County was the only active section in the North Texas district, and 18 producers completed in this county accounted for 2790 barrels of new production during August. Shallow areas in Wichita, Archer and Young Counties were unusually quiet.

The Yates shallow field in Pecos County section of West Texas now ranks as the most spectacular field in the Mid-Continent, and during August was extended in three separate directions with big flush production. The 17 flowing wells in this field are rated good for about 100,000 barrels daily, if tankage and pipe lines were available for an open flow test, and big wells are being obtained at low points on the structure as well as on he high spots. Marland Oil Company and the Mid-Kansas-Transcontinental Interests extended the big flush area to the west bank of the Pecos River with wells making 500 barrels per hour from the 1000-foot soft lime pay, while the Red Bank Oil Company widened the field to the southwest with a semi-completed well making between 400 to 500 barrels daily at 1621 feet. McMan & Marland Oil Company widened the flush area to the northwest with a 9000 barrel producer at 1315 feet. The latter two extension wells have led up to a more active drilling campaign.

The Church & Fields area, Crane County, contributed two unusually large wells during August, including Landreth Production Corporation's State Strip 11, which made 9000 barrels natural at 2840 feet. Prairie Oil & Gas Company shared in the big production honors when its Lassiter-University 3 gauged 500 barrels per hour for the first two hours, and had to be shut in for lack of storage. The peak output of this field has not been reached, but is being restricted to field storage and pipe line outlets. The Hendricks field, Winkler County, contributed a 5000 barrel producer early in August when Pure completed an east offset to the discovery well, and several other tests have reached the top of the oil and gas pay on the east side of the field, thereby forcing considerable more development.

(Complete details for all fields begin on page 88)

Dutton-Sillix et al brought in a small flowing oil well in southeastern Runnels County late in August at 2541 feet, thereby opening up a wide stretch of virgin territory for leasing and developing. This wildcat producer is the first for the county, and is only partially completed.

Eastland and Brown Counties contributed most of the important development in the Central West Texas district during the past month, and a good sized drilling campaign is now underway in the northeast extension of the original Fry field, located in western Brown County. The drilling of extension wells to old producing areas in Eastland County has resulted in a substantial production increase during the past month.

The seventh oil field in the East Central Texas fault zone was opend August 24 by the completion of a heavy gasser making a light spray of oil from three feet of Woodbine sand pay at 2876-79 feet on the R. P. Ward 50-acre lease owned jointly by W. A. Reiter, Will I. Lewis and Moutray Oil Company. This field is to be known as the Cedar Creek field, and is located in Limestone County, and several miles southwest of the Nigger Creek field, but is on a separate zone of faulting. One half-dozen locations have been made around the discovery well, which has increased its oil production to about 200 barrels daily after allowing the gas to blow. Other than this wildcat strike the Mexia-Corsicana district was dormant throughout the month.

Interest in production from the Serpentine was aroused toward the middle of the month when The Texas Company brought in a 250 barrel pumper near Dale, several miles east of the Lytton Springs field, Caldwell County. Since acreage in the district is held in small blocks, considerable drilling will be done until the area is tested. It is the general opinion that the pay territory will be smaller than at Lytton Springs, but the general situation is very similar. The depth at Dale is 2185 feet.

The Gulf Coast district held little of interest. Work in most of the salt dome fields was confined to routine locations and wildcatting showed nothing of exceptional importance. Humble has one well drilling in Austin County. A check at the end of the month showed 23 wildcat outfits in operation.

California

California activities totaled 62 wells of which 59 were producers. Seal Beach led other fields, but in this dis-

(Continued on page 72)

California Production Maintained By Deeper Wells

Nine bigger fields developed since 1920 have depth average fifty per cent greater than previous drilling

By GEORGE R. ELLIOTT
Petroleum Geologist

CALIFORNIA in recent years has drilled some deep oil wells and some still deeper ones which did not have so much oil. The deepest well in the world is at Olinda, Chanslor-Canfield Midway Oil Company's Olinda 96, which attained a depth of 8046 feet. The deepest producing well in the world is at Rosecrans, Miley Oil Company's Athens 6, 7591 feet deep and producing a small quantity of oil at that depth. These are what might be called "stunt" wells, but it is recognized that the average well depth is increasing. California production is coming from deeper wells, and correspondingly deeper wildcat tests are being drilled in search of oil.

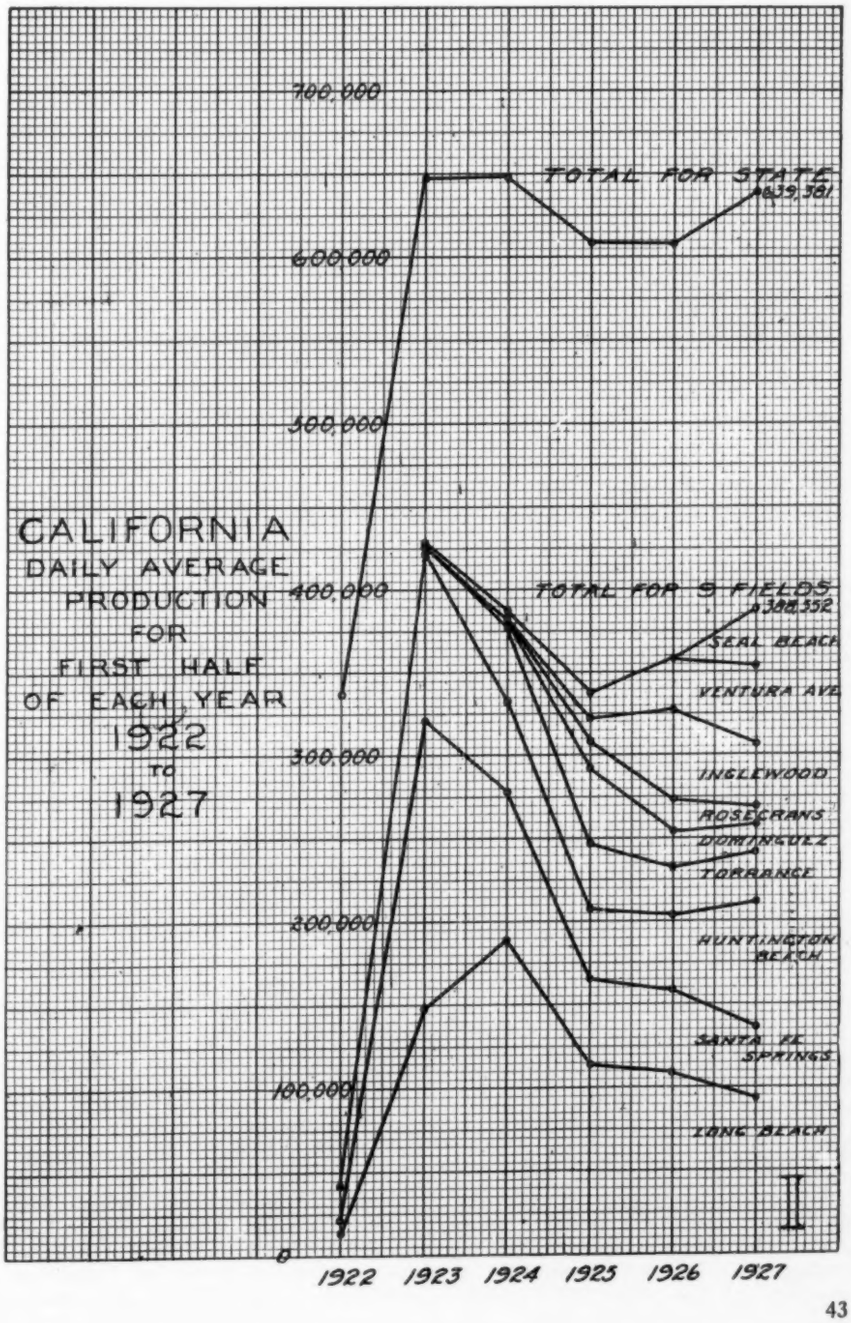
Before Seminole had made its heavy presence felt, California was the largest producing state, with one-third of the total United States production. Plate I shows graphically how the daily average production made its prodigious jump in 1923 and was thereafter maintained at the high level. It is clearly shown that nine fields are directly responsible for maintaining that high daily average.

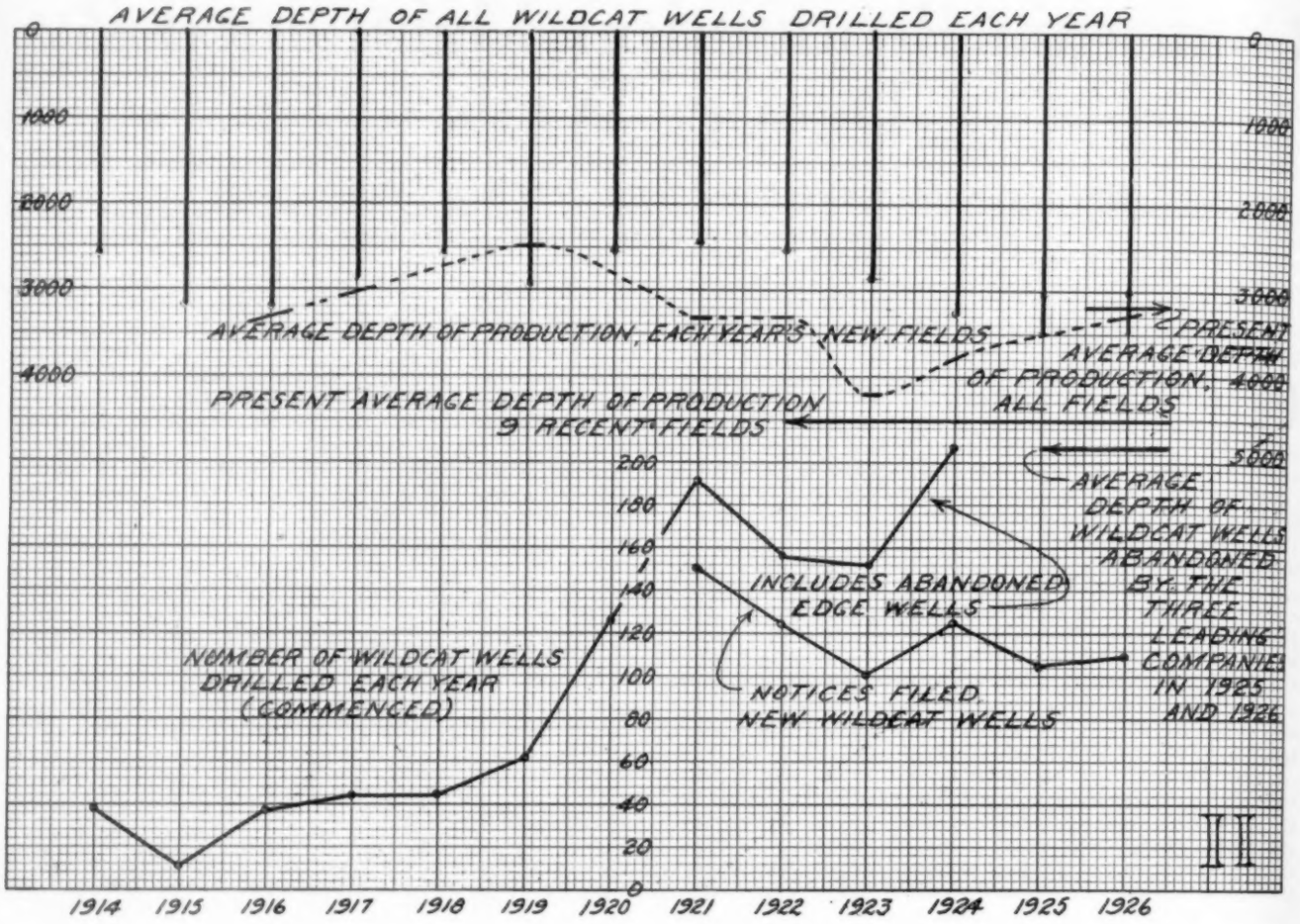
Of the daily average production for the first six months of 1927—693,000 barrels per day—60 per cent or 388,000 barrels per day was contributed by these nine fields. All these fields except Ventura Avenue were discovered after 1920, and Ventura Avenue made no appreciable impression on production until about 1924. This proportion of 60 per cent has been approximately maintained ever since 1923, when only three fields sustained the burden which was later divided among the nine fields.

The graph shows in a striking manner the place in history occupied by the year 1923; if the averages used were for the second half of the year instead of the first half, the graph representing the combined daily production of the three big fields would present a still sharper peak. To study the development of California's production from 1923 to 1927 is to study chiefly the development of the nine fields; during this period the total production from the remaining 17 fields shows a normal decline of 50,000 barrels or 16 2-3 per cent in five years.

Deeper Wells

How much deeper is the production in these nine fields than in the older fields? Without computing tedious statistics, it is interesting to make some very generalized comparisons. In plate II at the right side, two of the horizontal lines with arrows shown there are noted as follows: "Present average depth of production, all fields" and "present average depth of production, nine recent fields." A very general average of the production depth in all fields of the State at the present time is 3100 feet; compared with this, the average for the nine fields is 4500 feet, almost 50 per cent deeper. It may be well to explain that this 3100 feet, which seems rather low, is an average of the field averages, not an average of the aggregate well depths of the State. However, it is believed that an average obtained by the other method would not be much dif-





ferent; while the deep fields represent the largest percentage of the production, the shallow fields probably represent as many wells.

For wildcat wells, depth statistics are available in a somewhat more convenient and accurate form in publications of the State Mining Bureau. The upper portion of Plate II shows the average depth of wildcat wells for each year, and the bottom portion shows the number of wildcat wells drilled. For the year 1926, the average is compiled from incomplete data, the wells used being only those which were both commenced and abandoned in that year. It is rather surprising to note that even for the years 1914 to 1919, when only about 40 wells were being drilled each year, the average depth was almost 3000 feet. As early as 1915, wildcat wells averaged 3200 feet deep, only 300 feet shallower than the 1926 average. The wildcat wells drilled by the large companies during 1914 and 1915 averaged 3700 feet in depth, while the average depth of those drilled by the small companies was only 2400 feet.

It might be thought at first that this condition explained the comparatively high average for that period, but investigation shows that the relative proportion of wells drilled by large and small companies continues fairly constant, as indicated by the following comparison:

Of 21 wells commenced in 1914 and 1915, whose records are available, seven wells (33 1-3 percent) were drilled by Standard Oil Company, Associated Oil Company, and Oak Ridge Oil Company (now California Petroleum); the other 14 wells were drilled by small companies and individuals. During 1925 and 1926, the number of wildcat wells abandoned by companies which drilled five or more wells was 122, or 31 per cent of the total number of wells drilled—391. The following is a comparison of the average depth of the wildcat wells drilled by large and small companies for the two periods:

	1914-15	1925-26
Av. depth large companies	3700	4566
Av. depth small companies	2400	3223
Percentage greater depth for large companies	54	42

All but one of the nine fields shown in Plate I are in Los Angeles County, and it is therefore interesting to note the proportion of wildcat wells drilled in that county. During 1914 and 1915, only three of the 21 wells noted were drilled in Los Angeles County. In 1926, of 109 new wildcats, 24 were started in Los Angeles County.

Wildcat Depths

Below the graphic yearly well depth averages in Plate II is a wavy dash line, which represents the average depth of production for the new fields of each year; the line is drawn continuously, joining up the years in which new fields were discovered. This line is also very generalized and, where more than one field was discovered in any particular year, the line represents a mean. There is some indication that the depth to which it was necessary to go to find production during any given year has a tendency to influence the depth of wildcat wells during the years immediately following. For example: During 1919 the average wildcat was 2950 feet deep; the same year the average depth for the new fields (Elk Hills, Kern Front and Richfield) was 2500 feet; the next year and the year following recorded a shallower wildcat average of about 2500 feet. At this time no great amount of deepening was taking place in the older fields, and the depth of the new fields would be the chief factor influencing the depth of wildcat drilling. A few years later, the development of deep horizons in the older fields would have a tendency toward a deeper average depth of wildcats. In 1923, the graph shows the depth of production in new fields at 4200; at the same time, some of the other fields, particularly Long Beach and Huntington Beach, were finding deeper production; during the two years following, the average wildcat depth increases. The curve of the average depth of production in the new fields rises again to 3300 feet for 1926; the wildcat depth shows signs of hesitation, as if it may be about to show a corresponding decrease.

The nine fields shown in Plate I provide the key to California's production of today, not only in barrels per day, but in the characteristics of the oil. With the exception of part of the Inglewood and Torrance production, amounting to 30,000 barrels per day, or less than 10 per cent of the total for the nine fields, the production is light oil. The fact that these

(Continued on page 86)

California Formations Made Better Equipment Necessary

Method first was reluctantly adopted, but California now sets pace in development of rotary rigs for deep drilling

By BRAD MILLS
Staff Representative

THE history of oil field development in California since 1910 has been so closely identified with the progress of rotary drilling that it would be a very difficult matter to separate them.

The first rotary tools were used in the State in 1902, but it was not until 1910 that the method was in fairly general use in the various fields. There was much prejudice to be overcome. The first rumors that the new system was not a success spread rapidly and there was later a belief that the experiment could lead only to failure.

Many of the older operators were open-minded on the subject, however, and were perfectly willing to accept the rotary method if it would do the work better and faster than the cable tool system. California conditions were very different from those in the Eastern and Mid-Continent States and it was evident that the old method of drilling wells was far more satisfactory.

The first rotary well was drilled in the Brea Canyon district, near Los Angeles, by the Union Oil Company and met with only fair success. The practice was strictly an innovation and trouble resulted from the lack of knowledge of operation, the design of the tools and a strong metnal hazard. There is little doubt but that the last named reason was a very important one. They were supposedly making history and labored under the handicap. The whole affair might be termed an experiment, but they really made hole.

Not undaunted with the outcome of its first well, the Union Oil Company drilled a second rotary test near Lompoc. These two tests were far more important than the results obtained at the time seemed to indicate. It had been definitely proven that rotary could make hole in California, and to some it offered a possible solution to the problems then confronting the operators. Soon after the Union wells were drilled other tests were drilled with enough success to warrant further experiments.

The bulk of California production in the early rotary days was shallow, when compared with present day depths. The first rotary outfits were rather flimsy and were designed primarily for shallow work. It was this lack of strength which helped to retard the progress of rotary drilling.

Early Difficulties

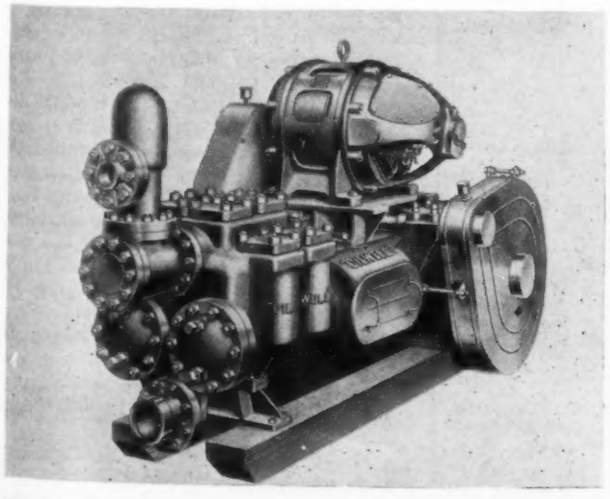
One of the earliest difficulties encountered in rotary drilling in California was the actual completion of the wells. Equipment was being improved gradually but the problem seemed to be just how to put the final touches on the completions. Apparently the oil sands were being mudded off and it was difficult to tell just where to stop drilling The driller purely guessed at the best place, it is claimed, and when he thought the sand was right, drilling was immediately stopped. It was not unusual to stop drilling in a streak of water sand. One large oil field was passed up for years because the principal operating company had been drilling through a wonderful oil sand without knowing it. It was customary for several years to finish the wells in the sand with cable tools. The practice seemed well warranted at the time.

Early in 1910, the Associated Oil Company drilled a rotary test to 4035 feet in the Midway district. The achievement was heralded far and wide. By that time, much of the resistance had been broken down and the larger oil companies not only were looking favorably upon rotary methods, but were gradually discarding cable tools for the quicker method. They were beginning to overcome some of the difficulties encountered in bringing in the wells and the use of cable tools at the finish was not so common.

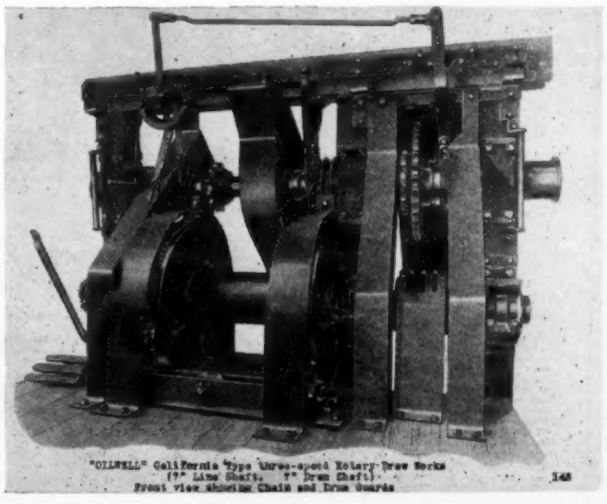
It is very interesting to note that rotary equipment has been improved and made heavier in almost exactly the same proportions as the trend of producing depths has been downward. The influence of California development is indelibly stamped upon the progress of rotary drilling all over the world.

The speed of drilling has likewise increased in about the same proportion as the depth of production. Heavier and more efficient equipment has been reflected in increased speed of drilling. In the beginning, little if any more hole could be made with rotary equipment than with cable tools. The depth per day was increased steadily, and now it is not unusual to average 500 feet per day for the first few days. As the depth increases, there is a natural decrease in speed, due to the various changes necessary. Formations affect the speed of rotary equipment much the same as cable tools. Both are equally retarded by some formations.

Conditions have affected the development of rotary drilling in California, and in doing so, also affected its progress in



Electrically driven mud pump used in California for heavy work. Picture courtesy Oil Well Supply Company.



A late development in rotary draw works. Picture Courtesy Oil Well Supply Company.

every other field. There was no necessity for deeper drilling 15 years ago and the demand was met by the fruits of shallow drilling. As a result, rotary equipment was improved and refined to meet those conditions. When it was apparent that more oil could be used, the largest operators looked to deeper production as much as to new fields. As much would be gained by new and deeper layers of sand as by the discovery of virgin territory. Oil producing countries all over the world were watching California. Rotary drilling stepped to the front, and with its progress came new producing sands under the shallower producing formations, as well as new fields.

The development of rotary drilling in California has affected every part of equipment about the rig and has caused the invention and development of numerous useful accessories. It has also had a world-wide influence and California designs are standard wherever used. The influence in the other parts of the country has been reflected in heavier equipment of every kind.

Deep Holes

It is surprising to notice how recent the first deep rotary wells were completed in California. As late as 1918, a 5000-foot well was unusual. In 1918, the Standard Oil Company startled the oil fraternity with a 6602-foot hole in the Lost Hills district. The cry had been sounded for more oil and it was shown that rotary could at least go much deeper than it had ever gone before after it. The effect electrified the whole industry and deep holes were to come at a rapid rate.

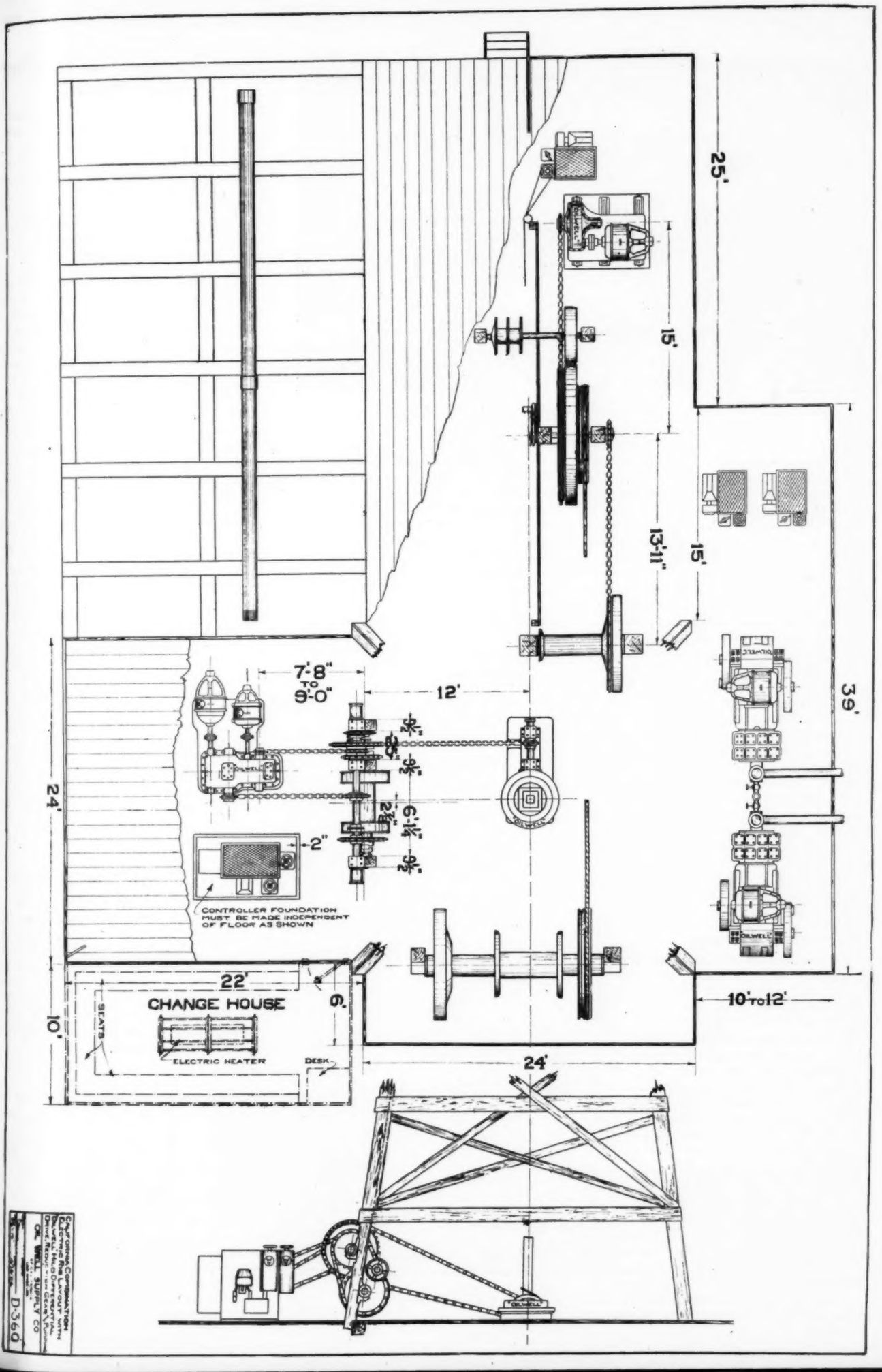
Even though rotary drilling had gained a good foothold in California soon after its introduction, it was not until 1922 that it was considered practical to drill wildcats with such equipment. For several reasons, the use of cable tools on wildcats had never been broken. When it is considered that some highly productive sands had been unconsciously drilled through with the old rotary outfits, we can hardly blame the wary operators for changing to cable tools when pioneering for new fields. With no proven sands, the rotary driller was handicapped.

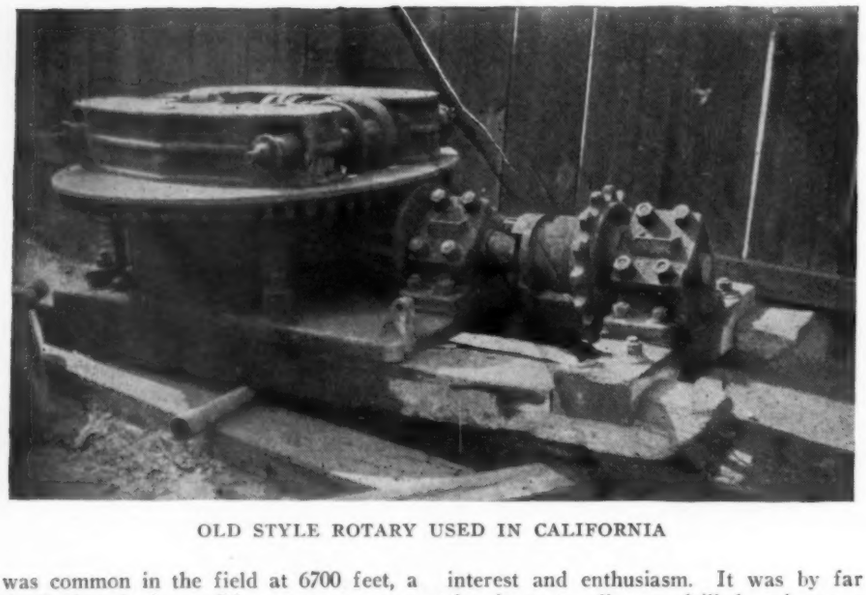
Cores

The development of the core barrel has undoubtedly been one of the most important achievements in the history of rotary drilling. Oddly enough, California conditions demanded such a device and it is that State that has developed it to its present high standards. The effect of this improvement spread to all other rotary fields. It is now possible to core with rotary tools with the absolute assurance that no important formations will be overlooked without an exact record. The Elliott Alco core drill was developed exclusively in California and is now used throughout the world. It consists of two tubes, one within the other. The inner tube is used protecting the core after it has been cut. The circulating mud fluid passes between the two tubes in making its way to the bottom of the hole. The two tubes are connected at the bottom by a cutter body, on the bottom of which is screwed a cutter head. The cutting surfaces are exceptionally hard. The top of the inner barrel contains a check valve to prevent the mud fluid from entering the core space. The cutter body is practically sealed against the bottom of the hole, allowing the core to feed into the inner barrel in its actual state. In this way a water or oil sand is easily detected.

The depth of rotary drilling in California has influenced rotary drilling all over the world. In 1922 and 1923, the country was thrown into a state of furor through the discovery of the Huntington Beach, Santa Fe Springs and Long Beach fields in one-two-three order. They were discovered and developed through rotary drilling and their depth interested the whole world. Rotary drilling had been groomed and primed for its victorious march down to some of the most prolific and long lived sands the world has ever known. The depth of production ran as great as 5000 feet, and the prestige of rotary drilling was increased in every clime. Through the use of improved equipment, rotary drilling had completely won its battle. It had also upset the world's production, and had improved its standing in doing so.

The deep sands of the Ventura sand were conquered in 1925 with rotary drilling, and it was the first time in history that 6000-barrel wells had been completed at such phenomenal depths. Production


25'
15'
13'-11"
15'
39'
7'-8" TO 9'-0"
12'
24'
2"
CONTROLLER FOUNDATION MUST BE MADE INDEPENDENT OF FLOOR AS SHOWN
22'
CHANGE HOUSE
9'
10'
SEATS
ELECTRIC HEATER
DESK
10' TO 12'
24'
CALIFORNIA CORPORATION
OIL WELL SUPPLY CO
D-360



OLD STYLE ROTARY USED IN CALIFORNIA

was common in the field at 6700 feet, a depth thought impossible not many years previous to the discovery. Shallow wells had produced in the field for years. So tricky and uncertain were the formations in the deeper wells, there was every reason to believe that the field never would have been discovered without the aid of rotary drilling. Even now, with core barrels and other late equipment, it is difficult to complete a well in the field. The influence this field had on the progress status of rotary drilling in all parts of the world was readily apparent. The demand for such equipment has been unusual. Quantity production at such a depth had been considered a bare possibility. Production is working even deeper in the field and other important developments are far from impossible. Production at 7000 feet is expected in the near future. The Associated Oil Company recently completed its Hartman 6 as a commercial producer at 6885 feet, while the Shell Company followed suit with a 5000-barrel gusher at the remarkable depth of 6881 feet. The sensational production in the Ventura field is cited to show how California development is guiding the progress of rotary drilling.

Rosecrans

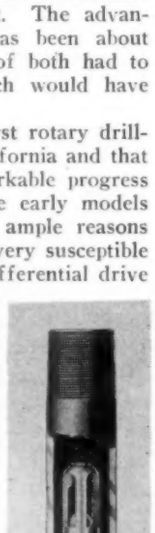
The completion in 1925 of a 7591-foot commercial oil well in the Rosecrans field by the E. J. Miley Oil Company helped to fill in a series of achievements which began soon after the World War. Oil had never been produced commercially at such a depth, and again the eyes of the world were focused on the accomplishments of California rotary drilling. The successful completion of a real producing well at such a depth was more remarkable because few dry holes had ever been carried so far.

Probably the greatest triumph of all for rotary drilling was the Chanslor-Canfield Midway Oil Company's Olinda 96, which was carried to a record depth of 8201 feet in 1926. The latest knowledge of rotary drilling was utilized on the test and the practicability of electric power was conclusively proven. It is safe to say that the ultimate outcome of this remarkable well was watched with world-wide interest and enthusiasm. It was by far the deepest well ever drilled and rotary drilling scored a distinct triumph by the achievement.

The varied formations in the State have been of much advantage to rotary development; and rotary drilling, on the other hand, has been of much assistance to California development. The advantages offered by each has been about equal. The development of both had to go hand in hand, or each would have suffered.

A comparison of the first rotary drilling equipment used in California and that now used shows the remarkable progress that has been made. The early models were light and there are ample reasons to believe that they were very susceptible to strains. The present differential drive for electric rotary drilling represents the most recent and advanced development in machinery and practice. It, like other well known rotary drilling outfits, is especially rugged.

Through the use of the core barrel and other improvements, California operators believe that a depth of 10,000 feet is not only possible, but probable. As the depth of rotary drilling has increased, knowledge has kept pace with it. Difficulties of the first well often are avoided in subsequent tests. California was not the original user of the rotary drilling methods, but it was one of the first States to embrace it and perfect it. The rotary capital of the world was long ago transferred to the State by virtue of actual achievements, and when California operators change rotary drilling methods, the whole world is interested.



ELLIOTT CORE DRILL
A type of equipment originating in California.

Test Resumes Drilling Atfer Flood

Houston — Rycade Oil Corporation's wildcat test, Atchafalaya 1, located near the mouth of the Atchafalaya River, St. Martin Parish, Louisiana, resumed drilling the first part of this week after being shut down for several months on account of the flood waters of the Mississippi. At the time it was shut down the well had reached 3792 feet after penetrating sandy shale with an oil odor from 3781 feet.

This wildcat has been watched with interest while drilling, as it is in a vicinity where various tests have encountered good showings of oil at depths both shallow and fairly deep. The Gulf Refining Company of Louisiana has completed several small producers within about two miles of the Rycade test, and the Humble Oil & Refining Company has also obtained some small production in the district.

Rincon Structure

Ventura, Cal.—The Chanslor-Canfield Midway Oil Company did not get satisfactory results in its test of Hobson 1B, on the Rincon structure, and is somewhat baffled at the failure of the well to produe after having been plugged back to 4400 feet from the original depth of 4900 feet. A string of tubing was run and a test made of the zone from 4215 to 4340 feet. The well recently attracted much attention by showing more than 700 feet of promising sand. A test at 4900 feet showed nothing but water. The offending water sand was located at 4431 feet. The company's Hobson 1A, the original test on the Rincon structure, is temporarily shut down at 6526 feet, awaiting a string of drill pipe. An effort will be made to sidetrack nearly 100 feet of pipe in the bottom of the hole.

Drill Near Santa Ana

Santa Ana, Cal.—A rig has been completed a short distance northeast of this city, section 5-5-9, by the Joe Crail and C. A. Son interests, and drilling will begin as soon as the necessary equipment arrives. About 500 acres have been leased near the well and the tract includes more than 30 small farms. A geologist spent considerable time on the leases before a location was recommended.

Leasing Near Ducor

Visalia, Cal.—Considerable leasing activity has been noted in the vicinity of Ducor, where several wells are being drilled by independent interests. Some of the largest operating companies in the State have acquired holdings on the strength of rumors that the Federal Exploration Company has an excellent chance of getting commercial production in Kinsella 1, section 15-22-24, which has stood cemented at 6225 feet for several months. A test of the well will be made after the cement is drilled out.

Hazards of California Wildcatter Have Not Tamed Him

By RUFUS J. PILCHER

IN spite of the present low oil prices obtaining in California, and an outlook that indicates crude will not soon raise above present levels, wildcatting continues and the increase of purely exploration wells grows steadily from year to year.

That wildcatters are optimistic as a class is indicated not alone by their activity during the current low prices for oil. This sporting instinct can perhaps be no better illustrated than by records that show the pitifully low percentage of success as told by abandoned holes. A compilation by the California State Mining Bureau appearing in its Vol. II, No. 1, Summary of Operations issued a few years ago, shows that from 1914 to 1924 there were drilled and abandoned in California 1070 wildcat wells, or an average of 97.3 wells per year. A more recently issued Summary of Operations, Vol. 12, No. 8, contains a similar compilation on abandoned wildcat wells for the years 1925 and 1926. This tabulation shows 391 wildcats drilled in this recent two-year period, or 195.5 wells per year. An increase of nearly 100 wells per year is concrete evidence of continually increasing interest in wildcatting, in spite of its hazards.

The State Department of Petroleum and Gas points out that in the 11-year period from 1914 to 1924, wherein 1070 wildcat wells were drilled to an average depth of 2773 feet, there were 15 new fields discovered. The proportion was 71.3 unsuccessful wells drilled for each field discovered, or for each hole that became a commercial producer. The percentage, then, of successful wildcats is 1.4 per cent. Of the 15 fields discovered, 13 were credited to nine of the larger companies, which drilled 252 wildcats to accomplish it, or 19 wells for each commercial producer initiating a new field. The percentage of the chance of the larger organization was then 5.2. Smaller companies drilled the remaining 818 wildcats to secure two fields. This was 409 wells per field or slightly more than two tenths of one per cent.

Such hazards when reduced to cold figures and widely circulated ought to make the small investor public exceedingly wary of gambling with "fly-by-night" operators and "shoe string" outfits.

To come back to the more recent compilation by R. D. Bush, Supervisor of the Department of Oil and Gas. The 391 wildcats drilled in 1925 and 1926 produced only two fields or 195 unsuccessful wells for each commercial producer. Actually, both new fields were discovered by larger companies and 10 of these drilled 122 holes or 61 wells per oil field. The remaining smaller operators drilled 269 wells with a successful percentage of zero.

From the above figures one must draw several conclusions. The first, and most important perhaps, that oil fields are growing alarmingly scarce in California. The second, that success goes with big organizations having both capital and experience. The third, that more money goes into the ground in the form of labor and material than comes out in the form of oil.

The Supervisor's compilation for the years 1914 to 1924 shows the aggregate footage drilled during that 11-year period as 2,966,740 feet. At $20 per foot, his estimate, the cost of putting down those 1070 wells was $59,334,800.

During 1925 and 1926 the average footage made by wildcats was 3642 feet per well, or a total of 1,424,022 feet of hole. At $20 per foot the drilling cost was $28,480,440.

The fact that nearly half as much money was spent in the last two years of a 13-year period as in the 11 preceding years is abundant evidence that wildcatting has not flagged nor has the wildcatter lost his optimism, in spite of the odds against him.

An interesting development as shown in the Oil and Gas Supervisor's Summary of Operations, Vol. 12, No. 8, was the tendency of wildcat wells recently drilled to go much deeper than in the preceding period. This is doubtless due to progress made in rotary drilling and in the handling and landing of long strings of casing as developed in recent years.

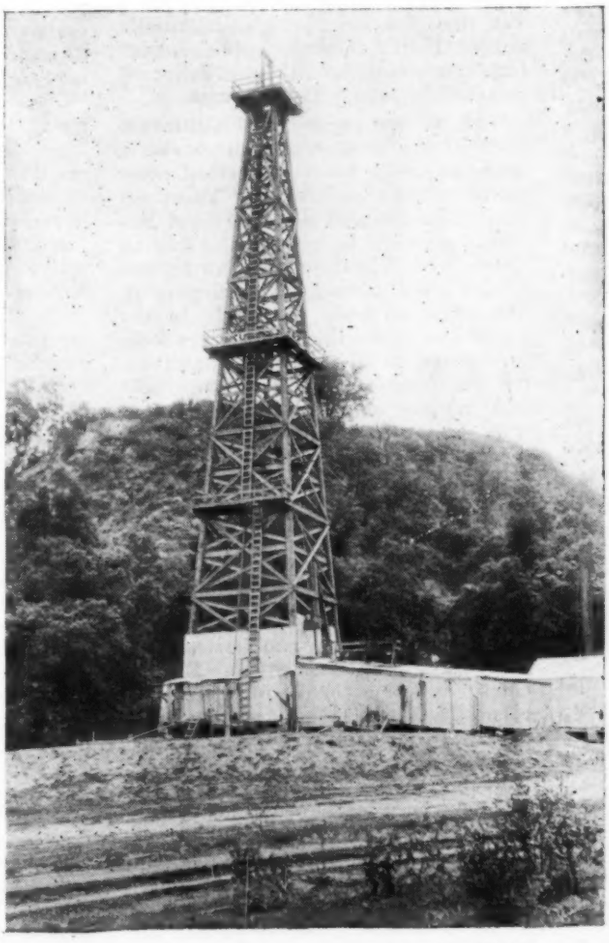
From 1914 to 1924, inclusive, the average abandoned wildcat depth was 2773 feet. In 1925 and 1926 the average depth was 3642 feet. The 122 wells drilled by the 10 large companies average 4566 feet in depth. One well was 7221 feet deep; 21 were over 6000 feet deep, and 71 were over 5000 feet in depth.

Perhaps, after all, it is a good thing for price structure and for the industry in general that wildcatting is not more successful. What would we do with the oil if 10 per cent of wildcats were productive of new fields? We are now up against an over-production era with shut in wells, because of the puny results obtained by a few wildcats.

Even granted that big companies fully cognizant of the over-production situation drilled the successful wildcats: Could they and would they sit on the lid until the oil was needed by the industry in general and price stabilized? There is perhaps one notable example of this lid sitting in California, against numerous examples of recent fields that have been permitted to run wild.

So much for the wildcatter. He's not an unmixed blessing.

There should be a law, though, to stop promiscuous drilling in granite.



ODDS 195 TO 1 IT'S A DUSTER IN CALIFORNIA

Isolation of California in Oil World Fast Passing

Tendency during recent years is for Eastern interests to come in while Western operators acquire holdings to east

By BRAD MILLS
Staff Representative

A NEW ERA of expansion in the petroleum industry is under way in California.

California interests, once seemingly content to operate in their own State, are gradually creeping eastward; while Eastern interests, attracted by the great possibilities of California, are firmly establishing themselves on the Pacific Coast.

This transition, as slow as it has been in the past, seems destined to make California's future development a free-for-all race, not greatly unlike the conditions now prevailing in the Texas and Oklahoma fields.

The discovery five years ago of three large fields in the Los Angeles basin did much to shatter the old ideas that California was a virtually isolated petroleum domain. The Eastern companies were greatly aroused by the sudden increase from 300,000 to 600,000 barrels daily. As a precaution, they immediately began negotiating for a share of California's surplus crude. A shortage of Eastern crude was far from an impossibility. California operators were in a somewhat receptive mood, due to the huge over-production, and any agreements made would be of mutual benefit to both East and West. Eastern concerns were impressed with the opportunities and entered the State, either through subsidiaries or in their own names.

California's leading producers have been mindful of the State's increased consumption and additional outlets and have pushed as far East as practicable, despite the periods of over-production in the past. They have not boldly jumped entirely across the country, but they have firmly established themselves in the various Rocky Mountain States and as far east as West Texas. They are equally aware of a possible shortage along the Atlantic seaboard or other parts of the country and have quietly secured holdings which would be of much value in such an emergency.

The increased demand for fuel oil throughout the Rocky Mountains, particularly along trans-continental railroads, has also been a contributing reason for the expansion on the part of the California interests. Some of the black oil fields of Wyoming are virtually controlled by leading California companies. Since black oil is used almost exclusively for fuel, it is not difficult to understand why the Western interests have pushed as far east as practicable to obtain sufficient heavy production.

Maritime Influence

Paramount in the minds of the Eastern concerns has been the fact that California should be considered as a future source of supply. The actual delivery of heavy California crude to the Eastern markets in competition with the lighter Pennsylvania and Mid-Continent oils has long been a difficult problem. It was long considered the height of folly to attempt the delivery of crude by tank cars and the construction of a pipe line had hardly been entertained. Shipping by water had been considered the most practical and it was that method which eventually proved that California crude, under certain conditions, could be delivered successfully to the Eastern markets.

Back of the invasion of California fields by the Eastern interests is also a desire to profit by the increased commerce on the Pacific ocean. There are many who contend that the great Pacific is destined to become the leading commercial ocean; and oil will be one of the cheif factors in developing it. The greatest body of people in the world live across the Pacific from California, and as they gradually awaken, the consumption in China and India will increase many times its present rate. This reason is partly theoretical, but one large eastern company secured a large block of California production on the strength of the gradual increase in consumption across the Pacific ocean.

In bringing about a series of huge consolidations, Eastern capital has been brought into play. In one instance, the power of the directorate has actually shifted from California to large Eastern cities. Where a change of control has been effected, barriers have been broken down and a sort of sympathy between California and the East has been awakened. Powerful New York interests have been instrumental in the consummation of huge mergers and purchases, and have done much to make Eastern and Western interests identical. The status of operating companies has witnessed a marked change during the past five years, and a register of all companies operating in the State during 1927 hardly resembles the one listed as official at the close of 1922.

Texas and Oklahoma operators have been slow to secure a footing in California, while the California operators have shown the same reluctancy to force their way eastward into the Mid-Continent. Recent developments have created a new interest, however, and a limited over-lapping is under way. The huge strip of territory lying between the Mid-Continent and California offers a good opportunity from either side.

Climate

The huge over-production in the Mid-Continent parallels the conditions in California in 1922 and 1923. The pioneering effect is exactly the opposite however, and now the California operator is given a chance to force his way eastward in the matter of development. Considerable California capital has already gone into the Texas Panhandle.

The climate in California has done much to influence Eastern interests. This fact shows how a comparatively small influence often results in a great movement. Visiting officials often are impressed with the climate and conclude that the greatest consumption will eventually be where the greatest number of people live.

The thickness of the deeper producing sands in California have had a pronounced effect upon the Eastern operator, who has been accustomed to measuring the producing formations in feet rather than hundreds of feet. The older Eastern and Mid-Continent fields were considered remarkable if they yielded a 100-foot sand. Some of the California sands are more than 2000 feet thick. Since the life of a field is closely associated with the thickness of the producing sand, it is not surprising to note an increase in Eastern capital in California.

Improved shipping facilities have done much to bring the East and West closer together. Extensive improvements have been made at the Los Angeles harbor and the largest tankers can load with dispatch. Practically all California shipments are now made from this port. The Panama canal has also played an important part in making Eastern contracts possible. California crude products are shipped practically all over the world.

A summary of all the companies en-

(Continued on page 130)

Gulf Coast Production at Peak During 1926-1927

History of rise and fall of productive areas indicates this section will remain important oil source for many years

By JACK LOGAN
Staff Representative

SINCE the beginning of the present year, Spindle Top, the rejuvenated veteran, has risen from fourth to second place among the Gulf Coast fields that rank highest in gross production for all time. Early in January it passed West Columbia, and within a few more months it had forged ahead of Sour Lake, which had consistently ranked second in gross production for more than a decade. At the beginning of 1926 Spindle Top ranked only fifth, but before the end of the year it had surpassed Goose Creek to gain fourth place.

Since the discovery of deep production at Spindle Top at the close of 1925, the field has yielded more than 27,000,000 barrels, making the total gross production up to the first of August, this year, 75,558,542 barrels. From January 1, of this year, to July 31, Spindle Top production was 13,407,542 barrels, an average of almost 2,000,000 a month.

Humble is still well in the lead of all Gulf Coast fields, with a total recovery of 99,083,277 barrels to its credit at the end of July. It has consistently held first place since it crowded Spindle Top out of that position in 1915 by the discovery within its area of deep production. Spindle Top now threatens to regain the pre-eminence lost in 1925, but Humble's lead is sufficient for it to retain first place for more than a year at least, although its production at present is negligible in comparison with that of Spindle Top. While Humble was producing less than three-fourths of a million barrels of oil during the first half of this year, Spindle Top was producing more than 11,500,000 barrels.

Seven Big Producers

There are seven fields in the Texas Gulf Coast besides Humble and Spindle Top, which are outstanding as having large totals of gross production to their credit. In the order of their importance as producers they are: Sour Lake, West Columbia, Goose Creek, Hull, Batson, Orange, and Saratoga. The first four of these would be included in a classification comprising fields that have produced from 50,000,000 to 75,000,000 barrels; and the other three would be among fields that have produced from 25,000,000 to 50,000,000 barrels. None of the other fields in the Texas Gulf Coast area has produced as much as 8,000,000 barrels.

The gross production of all fields in the Texas Gulf Coast territory from their discovery through July of this year, amounted to 548,322,285 barrels, approximately one-third of all the oil that has ever been produced in Texas.

It is a noteworthy fact that during 1926 the total production in the Texas Gulf Coast was greater than during any previous year in the history of the section. And in spite of slightly decreasing production, the yield for 1927 will establish a new high record.

The total yield of the Texas Gulf Coast area in 1926 was 41,085,000 barrels; whereas, the total for the first seven months of this year was 30,226,285 barrels. If the same rate of production is maintained during the remaining five months of the year, the total for 1927 will be nearly 52,000,000 barrels. It is very likely that the figure will not fall far below this mark, for the rate of production during the past few months was practically the same as that during the early months of the year.

Prior to 1926 the banner years for total Texas Gulf Coast production were 1921 and 1922, the yield for each of those years being more than 37,500,000 barrels, with large amounts coming from West Columbia, Hull, and Goose Creek, and with Orange, Pierce Junction, Damon Mound, and other new fields adding considerably to the total. In fact, all the years of the present decade have been outstanding for gross production, the figures for 1920 and each of the succeeding years being around 30,000,000 barrels or higher.

In 1902 the production was approximately 17,500,000 barrels, all of which came from Spindle Top, with the exception of a few thousand barrels from Sour Lake. In 1903 the production was about the same as the previous year, but it was about equally divided between Sour Lake and Spindle Top. In 1904 Batson produced nearly 11,000,000 and ran the total up to more than 21,500,000 barrels. In 1905 an unusually high new record, nearly 30,000,000 barrels, was established; not until 1921 was that record surpassed. It was during 1905 that Humble and Saratoga, then newly opened, were at their best, producing approximately 18,000,000 and 3,000,000 barrels, respectively. In 1906

TEXAS

Field—	Year of Discovery	Production Prior to Jan. 1, 1927	Production During First Six Months, 1927	Production July, 1927	Total Production to Aug. 1, 1927
Humble	1905	98,266,000	714,047	103,230	99,083,277
Spindle Top	1901	62,151,000	11,598,072	1,809,470	75,558,542
Sour Lake	1902	69,488,000	883,197	131,750	70,502,947
West Columbia	1915	62,156,000	1,859,882	287,060	64,302,882
Goose Creek	1906	58,726,000	1,478,855	284,620	60,489,475
Hull	1918	50,677,000	3,453,040	509,020	54,639,060
Batson	1903	33,243,000	292,107	39,680	33,574,787
Orange	1913	24,580,000	1,011,332	157,480	25,748,812
Saratoga	1901	24,399,000	209,872	36,580	24,645,452
South Liberty	1924	6,668,000	676,870	91,760	7,436,630
Damon Mound	1915	6,610,000	173,435	27,900	6,811,335
Pierce Junction	1921	4,244,000	1,421,167	221,030	5,886,197
Blue Ridge	1919	2,511,000	485,252	77,190	3,073,442
Matagorda County	1904	3,046,000	*	*	3,046,000
Big Creek	1922	1,168,000	665,075	109,430	1,942,505
Boling	1925	1,131,000	402,832	58,590	1,592,422
Barber's Hill	1916	1,049,000	*	*	1,049,000
Dayton	1905	703,000	*	*	703,000
Others		1,290,000	826,760	129,760	2,246,520
Totals for Texas Gulf Coast		512,106,000	26,151,735	4,074,550	542,332,285

*Included among "Others."

LOUISIANA

Jennings (or Evangeline)	1901	38,876,000	197,025	33,790	39,106,815
Vinton	1910	27,590,000	992,652	148,490	28,731,142
Edgerly	1911	6,527,000	160,185	29,450	6,716,635
Lockport	1924	1,953,000	940,897	230,640	3,124,537
Anse La Butte	1902	594,000	*	*	594,000
Welsh	1903	289,000	*	*	289,000
Others		82,000	353,872	34,410	470,282
Totals for Louisiana Gulf Coast		75,911,000	2,644,631	476,780	79,032,411

*Included in "Others."

the total dropped to about 11,500,000 barrels; and it continued to fall regularly until it reached 5,826,000 barrels in 1913. The leanest years in all Texas Gulf Coast history were 1909 to 1913, the annual average for the five-year period being around 7,000,000 barrels.

Rise in 1914-15

But in 1914 Sour Lake was revived by production from deep sands, and ran the Texas Gulf Coast total up to more than 10,500,000 barrels; and during 1915, with Humble producing with renewed vigor following the discovery of deep sands, the total rose to 17,000,000 barrels. In the succeeding years the total production figure continued to rise annually, due to the opening of new fields, until the peak was reached in 1922; after which the figure dropped a little, only to rise higher than ever before in 1926 and the present year.

From the above figures it is readily seen that in spite of the natural decline in production in individual fields, the general trend of production has been consistently upward, due to the opening of new fields and the finding of new sands in old fields. And although the exhaustion of the Texas Gulf Coast fields is frequently predicted, it is entirely within reason, judging by the past records, to believe that this territory will continue to hold an important place in the production of oil for years to come.

The history of Spindle Top dates back to 1893, when several shallow wells were drilled. It was not until January 10, 1901, however, that Captain Anthony F. Lucas brought in the discovery well, the celebrated Lucas gusher, which, from 1139 feet, was conservatively estimated to be making 75,000 barrels a day, shooting a six-inch stream of oil 200 feet into the air.

Following the completion of this well, excitement ran high, and by the summer of 1901 the boom was in full sway. The field reached the height of drilling operations and production in 1902, during which year the amount of oil gauged was 17,420,949 barrels. During the next year the production was only about one-half as great as in 1902; in 1904 it was less than 3,500,000 barrels, and in 1905 it was 1,600,000 barrels. After that year the decline was slow, the production falling below the 1,000,000-barrel mark for the first time in 1912. The production continued to decline until the discovery of deep production in November, 1925.

Spindle Top holds the record for the oil fields of the United States for gusher production. In addition to the Lucas gusher, which was variously estimated at 75,000 to 125,000 barrels a day, there was one other enormous producer, the Heywood Brothers No. 2, which flowed 8000 barrels in two hours by gauge, or at the rate of 96,000 barrels a day, at the end of 10 months this well had made 1,395,00 barrels of oil. Many other unusually large wells, though none so large as these two, were brought in at Spindle Top.

Humble

Humble established a record for yearly production among Gulf Coast fields when it produced over 18,000,000 barrels of oil in 1905, the first year of its history. That record has never been equaled in the Gulf Coast, but it will, no doubt, be broken this year by Spindle Top. Throughout its long history, Humble has never fallen below 1,500,000 barrels in yearly production, but during the present year it will probably do so. The daily average of the field is now only about 3000 barrels.

The Humble field began producing from the cap rock in 1905 and from the deep sand in 1914.

Sour Lake

Sour Lake, like Spindle Top, is an old field which produced originally from the cap rock in large quantities, and later, as production declined, was revived by the opening of deep sands. It made its first shallow production in 1902, the year following the opening of Spindle Top, and obtained its first deep production in 1913, 12 years before the discovery of deep oil at Spindle Top.

Goose Creek

Practically all of the production at Goose Creek has been from the deep sands. It is the only field in the Texas Gulf Coast, with the exception of Orange, where a salt dome has not been discovered. The discovery well was drilled in 1906, and the field began producing in a small way several years later, but it did not rise into the large producing class until after the comple-

(Continued on page 76)

THUMBNAIL HISTORY OF GULF COAST FIELDS

TEXAS

Field	Discovery Company	Discovery Well	Date Comp.	Depth	Initial Prod.	Fields Peak Year	Prod.	Recovery to August, 1927
Spindle Top	J. F. Lucas	Gladys 1	Jan. 10, 1901	1140	84,000	1902	17,421,000	75,558,542
Saratoga	Hooks et al	Hooks 1	1901	995	500	1905	2,922,000	24,645,452
Sour Lake	Sour Lake Oil Co.	Fee 2	July 18, 1902	375	10,000	1903	8,848,000	70,502,947
Batson	Parrafine Oil Co.	Fee 1	Oct. 31, 1903	790	600	1904	10,905,000	33,574,787
Humble	D. R. Beaty	Beaty 1	Jan. 9, 1905	....	5,000	1905	18,066,000	99,083,277
Dayton	Paraffine Oil Co.	Fee 3	Sept., 1905	....	5,000	1906	192,460	†703,000
Goose Creek	Rucker et al	Gaillard 2	1906	1600	800	1918	9,419,132	60,489,475
Markham	Hardy Oil Co.	Hudson 1	Jan. 6, 1908	1734	3,600	1911	562,000	3,046,000
Orange	Rio Bravo Oil Co.	Land 1	Aug. 13, 1913	3128	.....	1922	5,492,000	25,748,812
Damon Mound	Texas Exploration Co.	Wisdom 1	Nov. 15, 1915	1953	100	1920	677,402	6,811,335
West Columbia	Tyndall-Wyoming Oil Co.	Hogg 1	Sept. 7, 1915	2900	6	1921	12,573,450	64,302,882
Barbers Hill	Gulf-Humble	Chambers Co. Agri. Assn. 1	Apr. 5, 1916	1571	40	1919	169,415	†1,049,000
Hull	Republic Prod. Co.	Fee 3	July 26, 1918	1200	1,000	1921	8,718,000	54,639,060
Blue Ridge	Gulf Prod. Co.	Blakely C-2	Apr. 4, 1919	2705	1,200	1926	483,000	3,073,442
Pierce Junction	Gulf Prod. Co.	Taylor 2	Feb. 19, 1921	3525	75	1921	1,404,000	5,886,197
Big Creek	Gulf Prod. Co.	Wheat 1	May 10, 1922	580	150	1926	523,000	1,942,505
Stratton Ridge	Freeport Sulphur Co.	Dannenbaum 1	May 12, 1922	4346	150	¶	.....	.....
High Island	Sun Oil Company	Cade 4	Oct. 28, 1922	2250	70	1926	*	*
Big Hill	Houston Oil Co.	Pipkin-Davis 1	Mar. 29, 1923	1735	35	¶	.....	.....
Hockley	Texas Exploration Co.	John Warren 13	Oct. 20, 1923	1821	25	* ¶	.....	.....
South Liberty	South Liberty Oil Co.	Pickett 2	Jan., 1925	3206	25	1925	4,551,000	7,436,630
Boling	The Texas Co.	Taylor 3	Dec. 14, 1925	3338	10,000	1926	1,131,000	1,592,422
Nash	Rycade Oil Corp.	Nash 5	Jan. 2, 1926	4127	500	1926	207,127	378,350
Orchard	Gulf Prod. Co.	Moore 5	Jan. 18, 1926	3708	2,000	1926	*	*
Fannett	Gulf Prod. Co.	Bordages 2	Jan. 20, 1927	5052	50	¶	.....	.....
Allen Dome	Rexana Pet. Corp.	Allen Bernard 1	May 17, 1927	5138	700	¶	.....	.....

¶No commercial production. †Last two years included in miscellaneous. *Included in miscellaneous.

LOUISIANA

Jennings	Heywood Bros.	Jennings 1	Aug., 1901	1882	....	1906	9,025,000	39,106,815
Arse Le Bute	Heywood Bros.	Fee 1	1902	1350	....	1908	145,000	594,000
Edgerly	Bright Oil Co.	Bright 1	1911	1500	....	1915	1,403,000	6,716,635
Vinton	Sabine Oil Co.	No. 1	June 25, 1910	2230	....	1925	2,535,000	28,731,142
Lockport	Vacuum Oil Co.	Miller 1	Sept. 9, 1924	3875	....	1926	1,348,000	3,124,537
Sweet Lake	Pure Oil Co.	Sweet Lake 1	Oct. 11, 1926	5867	....	1927	*	*
Starks	Gulf Prod. Co.	Lutcher-Moore 4	Jan. 21, 1927	4200	....	1927	*	*
Eagle Point	Calasieu Oil Co.	Schwing 1	Feb. 28, 1927	1223	....	1927	*	*

*Included in miscellaneous.

Effect of Geophysical Methods on Drilling in the Gulf Coast

By DONALD C. BARTON
Consulting Geologist and Geophysicist, Houston, Texas

THE use of geophysics in connection with drilling in the Gulf Coast is another example of the replacement of haphazard methods of guess, luck and repeated trial, by moderately precise scientific methods and marks another step in the evolution of oil production into an engineering science. The use of geophysical methods allows considerable, and in some places high precision in the location of wells in reference to the salt domes, and offers the bare possibility that ultimately one of the methods will afford fair precision in the location of wells in reference to oil sands.

The oil production of the Gulf Coast is associated with both salt domes and with structures such as Goose Creek and Orange that apparently are not salt domes. The production on the salt domes is found in the upper part of the cap-rock that caps the top of the salt core, in sands above the cap-rock, and in relatively deep lateral sands lying against the flank of the salt core. The cap-rock and super-cap sands types of oil fields tend to cover the whole or nearly the whole of the top of the dome, are circular or elliptical, and comprise some 250 to 600, or in one case more than 1000 acres. The lateral sands type of oil field lies in the form of a narrow ring or part of a ring around the edge of the salt core. The width of the ring of productive acreage ranges from 150 feet to some 4000 feet, but in general is not more than 1500 feet.

Uncertainty of Old Methods

To determine that a salt dome underlay a prospect in the old days, it was necessary to drill into the cap-rock or the salt, and unless the well happened to be sufficiently lucky to be located on top of the dome, it might go to great depth without determining the presence of the dome. The salt dome mounds such as those at Damon Mound, Barbers Hill, Hull, High Island, were in themselves a definite indication of the salt dome and gave a definite indication of where to drill to prove the presence of the salt dome, but where no surface mound was present or where it was indistinct, the location of the first few tests was a case of guess and trust to luck—and often the guess was wrong; as for example at Fausse Pointe, the Ohio Oil Company's test would have discovered the dome if it had been drilled just south of the Fausse Pointe gas seep and paraffin dirt bed instead of just west-northwest of them, although at the time the test was drilled several years ago, there was no reason to guess that the location south of the gas seep was the correct one.

In the last few years before and just as the geophysical methods were coming into practical use in the Gulf Coast, it was becoming the practice in wildcatting for salt domes to scatter several 1000 to 1500 foot tests over the prospect in the hope that one of them would plug into the dome or that by correlation of the logs of the wells some clue might be obtained of where to drill a deeper test for a deeper salt dome.

Determination of the presence of the salt dome and the position of the center of the dome nowdays is possible with high precision, entirely in advance of drilling, through the use of the seismic and torsion balance methods of geophysical prospecting. Those methods not only indicate definitely the presence of the dome, but also indicate the position of the center of the dome with high precision and the approximate depth to the top of the cap or salt. The list of the salt domes discovered by the torsion balance and the seismograph and proved by the first well drilled is long and impressive: Nash, Long Point, Orchard, Hawkinsville, Allen, Clemens, Moss Bluff, Fannet, Starks, Fausse Pointe.

Faith of the Gulf Coast operators in the reliability of those geophysical methods is so great that they will pay proved salt dome prices for acreage on an undrilled prospect, if the seismograph or torsion balance definitely indicates the presence of a salt dome. A few geophysical prospects have not proved out when drilled, especially torsion balance prospects, but in every case the geophysical indication which led to the drilling was indistinct and to the effect that a salt dome might be present but was in no way guaranteed. No definite indications of a salt dome by either the seismic or the torsion balance method has been proved false as yet.

Determines Size

If the well proving the presence of a new dome also discovered either cap-rock or super-caprock production, in the old days there was no way of knowing how large the dome might be and therefore the amount of the possibly productive acreage—unless there was a definite salt dome mound; and the area of the dome might be anything from 75 acres to 1500 acres. It took a long and extensive drilling campaign to outline the productive area. Nowadays it is possible to block out the extent of the top of the dome with at least fair, and in some places high, accuracy through the use of the torsion balance and seismograph, entirely in advance of drilling; and it takes only a couple of weeks, or at the most a month, and costs only a few thousands of dollars. A few wells scattered uniformly over the top of the dome as indicated by the geophysical methods will then block out the general oil possibilities of the whole top of the dome.

Guessing where the edge of the salt was, if it was wholly undefined, or guessing where it would go to, if it was partially defined, used to be the indoor sport and worry of geologists and operators who were interested in the lateral sand production on a new dome or on the wildcat portions of the old domes that were not well defined. As the productive zone easily might be only a thousand feet wide, as the diameter of the dome might be anything from a thousand feet to three miles, and as in many cases, the center of the dome was not known, there was usually little on which to base a guess, and yet a guess did not have to be far wrong to be all wrong for practical purposes.

The memory is still fresh in the Gulf Coast of our guess and guess again as to where the edge of the salt was at Big Creek in the first year or two after the completion of the discovery well, and the memory is still fresher of how wildly Boling had us all guessing in regard to the position of its edge. The discovery of Boling came late enough, however, so that the torsion balance was of considerable use in outlining the edge of the dome in wide, undrilled gaps. Nowdays however the edge of the salt and the cap can be determined by the torsion balance on domes rising above a depth of 2000 feet below the surface within 100 feet horizontally for about 20 per cent of the domes and within 500 feet horizontally for about 75 per cent of the domes.

The writer's line of the edge of the salt at Nash, drawn on the basis of a reconnaissance torsion balance survey and entirely in advance of drilling was in error as follows: On the north-northeast 500 feet too far in; on the east 500 feet too far out; on the south about 900 feet too far in; on the west about 300 feet too far out, and on the north-northwest about correct. Nowdays, as for example on the Allen dome, we have the sight of a deep lateral sand test being started with

warranted confidence before the edge of the salt has been defined at all by drilling.

The hope of the geologist is ultimately to have a method that will give him a direct indication of the presence and position of oil sands. The present geophysical methods that are in practical use do not do so. The torsion balance and the seismic methods indicate the position and general character of the salt dome. The geologist then has to make his locations on the basis of his general knowledge of the occurrence of oil on and around the salt domes and, as all know who are at all familiar with salt domes, it is a case of try and try again repeatedly, even on an old known dome where the outline of the dome is fairly well known; and a great many well located tests may have to be drilled before the lateral sand production is discovered; for example at old Spindletop, six tests were drilled to more than 3500 feet at locations well within 1000 feet of the edge of the salt at a depth of two thousand feet and well scattered around the dome, and yet they missed the prolific lateral sand production.

The electrical methods seem to offer a bare hope that a method may be perfected that will tell where the oil sands are and at what depths. Theoretically one of the electric methods seems to offer a sound scientific basis for a belief in the possibility, although not necessarily probability, of the method being able to detect oil sands, but the application of the method on the Gulf Coast seems to indicate that the instruments or the technique or both as yet have not been sufficiently perfected.

Although some of the geophysical instruments sometimes are facetiously classed with them under the term "doodlebug," witchwands, wigglesticks, doodlebugs, mysterious little metal capsules on the end of a cord and the whole ancient but not honorable family of oil-finders have no relation to the geophysical methods and in the eyes of scientists have never given any indication of being in any way able to indicate the presence of oil or of being of any assistance in making locations for wells. The effects that the geophysical instruments measure are most extremely faint and the geophysical instruments that are used to detect and measure them are most extremely delicate and sensitive. For an analogy, the faintness of the effects of which the geophysical instrument make use is roughly of the same order of faintness as the radio waves and the geophysical instruments themselves have to be of the same order of sensitivity as a radio receiving set. The whole family of "oil-finders" are rather crude and coarse affairs; no one who is at all familiar with radio would expect them to be sensitive enough to detect such a very faint thing as a radio wave; the scienticst is quite sure of their incompetence to help in the location of wells for oil (or any thing else). And the test of experience is that although they have been in the Gulf Coast since operations first began there, they have not yet shown any ability to be of any aid in locating wells; in great contrast to the test of experience of the torsion balance and the seismic methods, which in three years have completely established their high value to the oil operator.

Work Suggests Committee to Draft Law to Halt Over-Competition in Drilling

By CLARENCE L. LINZ

Washington, D. C.—Legislation removing the threat of anti trust prosecutions from unit development of oil pools may be sought of congress at the next session, it is indicated. Permission to operate on the unit system, it is anticipated, will be sought first for the government-controlled lands, with its extension to other pools hoped for as a result. The move is predicated upon the success which officials here believe has attended the introduction of the system at Seminole, under the Oklahoma State laws.

That laws of some kind are necessary for the conservation of oil and the elimination of situations such as have existed for the past few months are imperative was pointed out August 30 by Secretary of the Interior Work, chairman of the president's oil conservation board, in an address before the annual meeting of the mineral law section of the American Bar Association at Buffalo.

"A civil war of intense competition is today producing a waste problem in the oil industry so big that it is national in extent and interest," he declared. "Unless the industry is able to co-operate, huge losses are inevitable. Statistics of a somewhat reliable nature indicate a decline since the peak in 1926 of over $500,000,000 in the market value of the oil company stocks represented on the New York exchange. Some indicate that losses to the industry as a whole will total nearly $1,000,000,000.

"Over production is no longer a debatable issue. Whereas a year or two ago the optimists in the oil industry kept up their courage by denying both the fact of present surplus and the possibility of future deficit, all now admit that the oversupply of an expendible resource is the sure portent of future famine.

"The chief cause of over production is over competition."

Reluctance of the government and of oil industry to take steps in the matter was criticised by Secretary Work. "Are we to indulge in watchful waiting for disaster?" he asked.

Too Much Progress

"The present crisis in oil—described by one oil company president as the most malignant form of industrial disease and by another president as an economic disaster of international proportions—has come because of this delay in attending to the human side of the problem. Law makers and law interpreters have stood back while the procession of oil operators, petroleum geologists, production engineers, inventors and builders of machinery have passed by, making progress such as the world has never seen before. It was appreciation of this situation a year ago that led our Federal Oil Conservation Board in its report to urge the formulation and adoption of remedial measures, all the more urgent in view of this intense activity of the engineers. We then suggested 'that the lawyers familiar with the business of the oil operators take the lead in developing the needed line of action in accord with the discoveries of science and changes in engineering practice.' A year has now passed, the peak of production of oil is endangering the health of the industry—indeed, the very life of the smaller and weaker companies—and yet no constructive move has been made toward 'relieving the pressure of competition' which now bears so heavily upon the thousands of units in the business which the country can not afford to see go down and out.

"If federal or additional state legislation is essential as a corrective, the sooner such enactment is evolved the better. If the remedy rests with the oil companies themselves, through voluntary and wholehearted co-operation, the time is preeminently ripe for action."

Present day distribution of gasoline is too costly, the secretary asserted, and is giving rise to complaints on the part of motorists. The 250,000 filling stations throughout the country serve the motorist well but at heavy cost, absorbing nearly as much of the price paid for gasoline as the refinery and oil well, while the transportation charges generally equal the highest of state taxes. "Distribution costs too much," he commented, and the motorist is paying for competition.

"What is needed," Mr. Work believes, "is not government interfering with business nor business meddling with government, but government helping industry for its own and the public good.

"I believe the time has arrived when the federal government should ask congress for legislation intended to protect our oil deposits against waste in production, and the public against future high cost of oil production."

The secretary recommended the creation of a committee consisting of three members selected by the American Bar Association, three practical engineers from the oil industry and three representatives of the government, "to draft a bill for the Federal Oil Conservation Board to study and recheck, with a view to its introduction into the 70th congress. Through such procedure," he said, "we will have unity in thought, action and legislation in the interests of economic production and consumption of our greatest natural resource, which has become the world's dominant factor in the economic, industrial and social life of our modern civilization."

Geophysical Discoveries Leave Much Drilling to Do

History of Gulf Coast development shows production most readily found when surface conditions show location of dome

By WALLACE DAVIS
Staff Representative

THE number of salt domes brought to light in the Gulf Coast by use of geophysical instruments since the introduction of such methods of exploration is sufficient, together with the continued development of the present producing areas and other known domes yet undeveloped, to keep operators busy for at least 10 years unless means of locating the oil deposits around these domes is worked out.

Securing production around recently discovered domes as compared with the early productive domes is proof in fact that the choice fields were located from natural evidences offered by the early discovered domes. Comparisons of the effort necessary to get production around domes discovered from gas or oil seeps and those requiring scientific methods coincide well with the comparisons of efforts obtaining the production after the presence of the dome is known. The fields which have been the greatest producers are those whose domes were more evident and those which required the least drilling to obtain the first production. And history of the Gulf Coastal development will, with few exceptions, show that the harder the dome was to locate the harder it was to secure production around it, and the less oil it produced in the long run. Among the exceptions is West Columbia, with its yield of approximately 63,300,000 barrels after being opened for production in 1918.

Stratton Ridge, North Dayton, Big Hill and Hockley, in Texas, and Bayou Bullion, Louisiana, on the other hand, stand out as exceptions of early known domes which have been exploited for a quarter of a century from their outward offerings of the presence of oil, and which have had no production of consequence. These domes, however, were not drilled from indications like those offered by Spindle Top, Jennings, Saratoga, Batson and Sour Lake, where oil and gas seeps led to drilling and where drilling led to almost immediate discoveries of production in a big way.

Increase Drilling

While the seismograph and torsion balance have to a great extent done away with rank wildcatting in the Gulf Coast country, they have enhanced the amount of exploitive drilling rather than curtailed it. Records today show that more drilling is being done to outline productive spots around newly discovered domes than was done in the early days. This fails to hold good where some of the old domes are concerned, such as Hockley, Harris County, where 52 holes were drilled, out of which only two made any production, and Stratton Ridge, Brazoria County, where 51 holes have failed to bring commercial oil. Under such comparisons, however, it should be considered that these two domes have been undergoing exploration for, roughly, 25 years against less than three years the geophysically discovered domes have been drilled.

Two domes of the 12 located by geophysical instruments in the Texas Gulf Coast are producing, Orchard and Nash, and the latter was only confirmed by torsion balance after it had been located from sulphur water and other indications. A total production of 378,850 barrels from Nash dome has required the drilling of 40 wells within slightly more than three years, an amount commonly produced in a single well in one year at Spindle Top or Jennings field. Orchard has produced approximately 200,000 barrels after the drilling of 12 holes during the course of about three years.

Two South Louisiana domes have been opened for production out of nine outlined by geophysical methods, Starks and Fausse Point. Starks dome is recognized as the best producer among the domes located by geophysics. Present indications place it as the best potential producer of any of the geophysically discovered domes. Fausse Point, opened for small production within a few months after its discovery with seismograph, is barely a commercial producer.

Takes Plenty of Drilling

The Gulf Coast territory has no equal in the number of test wells necessary to put a prospective field on a settled producing basis. There have been 115 wells drilled at Big Creek, Fort Bend County, including a number of shallow sulphur tests, and at the close of June, 1927, the field had turned out only 1,833,075 barrels. With 104 holes at Boling, the field has made 1,543,800 barrels, and Barbers Hill, exploited since 1901, has produced 1,097,500 barrels after the drilling of 135 wells. North Dayton, Liberty County, has produced 705,000 barrels of oil in past years. A total of 65 holes have been drilled there.

From 292 wells drilled at Damon Mound, Brazoria County, only 86 have produced. Oil and sulphur tests combined number 63 at Piedras Pintas and 69 at Palagana, Duval County. The former has produced approximately 65,000 barrels of oil, while the latter has made no commercial production.

Big Hill dome, Jefferson County, classed as a prospective producing spot for more than 20 years and exploited at intervals all during that time, has never produced commercially after the drilling of 26 wells.

The history of the above mentioned domes offers an idea of the amount of drilling probably necessary for securing of commercial production around domes outlined with geophysical instruments and now being explored for oil. The fact that most of the old group offered evidences of oil sufficient to attract operators places them even higher in the rank of potential producers than those domes requiring geophysical instruments to detect their presence. Another point in favor of these old domes as better probable producers than geophysically discovered domes is that many of the tests drilled around them were haphazardly located due to little knowledge of the trend of the salt, whereas present exploration work is scientifically outlined, centralized around points indicated by geophysics to be the best chances for production.

Domes Not Tested

Three domes in the Texas Gulf Coast outlined by geophysical methods have yet not been drilled for confirmation, including Lost Lake dome, Chambers County, controlled by Pure Oil Company, Ferguson Dome, Washington County, controlled by the Sun Company, and San Felipe dome, Austin and Waller Counties, the presence of which was indicated recently by seismograph shooting.

Long Point, Fort Bend County, which is blocked solidly by the Gulf, has had 36 holes drilled without obtaining any production. Hawkinsville, Matagorda County, also a Gulf dome, has failed to produce after 16 holes have been drilled. The Gulf has drilled

15 tests at Fannett, Jefferson County, including 14 dry holes and a 50 barrel well which produced only a few days. Moss Bluff, Liberty County, failed to show production from five shallow tests drilled after its discovery more than a year ago. Roxana Petroleum Corporation has drilled 20 holes at Allen and Clemens domes, Brazoria County, including 11 at Clemens and nine at Allen, without making any commercial production. A shallow hole showed oil at Clemens but failed to produce, and one deep hole at Allen dome made a 700 barrel initial to sand up within 24 hours.

In South Louisiana there have been six domes discovered since the opening of 1927. Little exploration work has resulted, due to the market condition and the fact that acreage surrounding the dome is unitedly controlled. Such discoveries are not considered of great importance, however, when a history of Hackberry dome, west of the new discoveries, shows that 54 holes have been drilled, several below 5000 feet, without making commercial production. Bayou Bullion, a known dome since the first oil in the Gulf Coast, has been the scene of 34 wells, none of which have produced commercially. Welsh field, a non-dome field, has had 61 holes drilled with only small shallow production as a result, and the field is now off production of any consequence. Pine Prairie, another South Louisiana dome characteristic of those recently discovered, has never had paying production after the drilling of 30 wells.

Inasmuch as there are many old domes in the Gulf Coast offering the same possibilities as they have offered for more than a decade, together with deep sand possibilities around several of the best producing cap rock fields, the addition of 21 geophysically discovered domes in three years offers prospective material for exploration companies for many years hence.

Non-Inflammable Gas

San Diego, Cal.—A good quantity of non-inflammable gas has been struck in the C. C. Randall wildcat, section 12-14-4, near Del Mar, and the operators believe that they have encountered helium. A test is now being made to determine the properties of the gas. The test was started as a water well, but was continued after a good flow of inflammable gas had been found at a very shallow depth. Inflammable gas was also found in quantities at 1650 feet.

Move Dallas Office

Dallas, Texas—The United Iron Works, Inc., announces the removal of its branch sales office in Dallas from the Kirby building to the 21st floor of the Magnolia building.

Trade Commission Moves Against "Promoters"

Washington, D. C.—Crooked promoters are not to be permitted to use the oil industry as a basis for the floating of fake stocks, it is indicated by the Federal Trade Commission in making public the fact that it has issued orders requiring eight Texas "oil" companies to cease from misrepresentation in the sale of their stocks.

Misleading statements as to the methods of financing, false claims of ownership of large producing wells in the heart of the proven fields and of paying big dividends to purchasers of stock were found to be the general features of the advertising literature sent out by these companies. Some of the projects were in the form of syndicates consisting of a number of companies whose directorates interlocked. It was found that few dividends were ever paid by the campanies, that usually they owned no land whatever or, if they did, it was in unproven territory, and that false statements were freely resorted to in the effort to sell stock.

At the same time, the commission has announced that it is about to undertake a comprehensive investigation of the whole question of "blue sky" stock with a view to formulating arguments in favor of state or federal legislation regulating stock issues. The eventual outcome of this study may be laws which place all corporations under rigid supervision, making necessary official approval for the issuance of securities and other activities of a corporate nature, the same as is now exercised over the railroads by the Interstate Commerce Commission.

For a number of years the oil industry's rapid development, "gusher" wells and the big profits which have been made by individuals fortunate enough to develop extensive pools have been used as bait by crooked promoters. A general result of this misuse has been a distrust of all oil stocks except those of a few well known companies, and the raising of capital by new companies with legitimate propositions has been made more difficult.

Probably the outstanding figure of the oil industry's "underworld" is Dr. Frederick A. Cook, notorious if not notable Arctic explorer and popularizer of gum drops as Eskimo dessert, now a "guest" of one of our modern penitientiaries as a result of his oil industry experience. But "Doc" Cook has had a host of less well-known but hard working disciples, who have caused the post office department, the department of justice and other agencies of the government a great deal of trouble.

In the opinion of members of the Federal Trade Commission, especially Commissioner Abram F. Myers, formerly connected with the department of justice and author of the resolution providing for the blue sky investigation, it is time that the activities of these gentry were brought to a halt, since they are mulcting "hard-headed" business men, widows, farmers and working people of millions of dollars a year. They must be put out of business, Commissioner Myers holds, ever if, to do so, it is necessary to harness every corporation in the country and make it responsible to governmental authority.

Formation of fake companies for the "development" of oil properties, the manufacture of automobiles, radio sets or what-not, is made easy by the laws of a number of states, it is pointed out, which are designed more to secure the fees from incorporations than to protect stockholders. Several of these states actually advertise for the purpose of attracting the promoters of new corporations, many of which, of course, are absolutely honest and incorporate in those states because their laws give them more freedom than do the statutes of other commonwealths, but probably almost as many are nothing more or less than stock-selling schemes.

The corporation laws of the State of Texas, believed to be stringent, are capable of evasion, it is shown by the work of the Federal Trade Commission, since many of the concerns proceeded against for misrepresentation are organized as common-law trusts. This, it is held, shows that there is a real need for corporation legislation which will actually control, and which is not subject to evasion by "common law trusts" or other devices.

While admitting that the best method of control is by state law, officials here declare that it would be impossible to get all the states to adopt uniform legislation and that the eventual outcome of the present situation will be the enactment of federal laws which will exercise control upon all corporations doing an interstate business. Activities within a state, of course, do not come within the authority of the federal government, but it is pointed out that probably 90 per cent of all incorporated concerns engage in interstate commerce either in the purchase or sale of products and that all of the corporations whose stocks and bonds are listed on stock exchanges are owned by persons scattered over a number of states.

In other words, if the states themselves will not clean house, the federal government will do it for them. The rights of honest business as well as the protection of the public demand that blue sky securities be abolished.

Gas Found Near Round Mountain

Bakersfield, Cal.—The Ring Petroleum Corporation has drilled into a promising oil sand in its Converse well, near Round Mountain. The new formation was encountered at 3940 feet and contained so much gas that the company is having trouble making further progress in the hole. The gas brings much sand to the surface and forces it upward in such a manner that the tools are of little use. The company recently tapped another oil sand below 3000 feet.

Ernie Richards of Tulsa, who has been connected with the American Tank Company of Oklahoma City, now is associated with the National Tank Company and will continue to make his headquarters in Tulsa. The general offices and factory of the National Tank Company are in Tulsa.

Development of Geophysical Science In Gulf Coast Exploration

By JOHN F. WEINZIERL
Consulting Geologist and Geophysicist, Houston, Texas

ALTHOUGH the more important geophysical methods and their instruments in present day use in the search of structures in the subsurface had their beginning and early development in one or the other of the European countries, they at no time received the widespread and varied application given them the past three years on the Gulf Coast of North America. This is partly due to the fact that after the war most European countries were either confronted with a scarcity of money or the loss of colonial domains, or both, and hence the lack of virgin territory along with the money problem did not permit the fullest application of these methods. On the other hand the American geologist had pretty well combed the outcrop areas in likely oil territories and stood before the problem of finding some cheaper method than drilling of deep tests to explore areas in which outcrops were poorly preserved or did not conform to the subsurface structure, or were covered by recent deposits. These geophysical methods helped to solve these problems as far as their limitations permitted.

The two methods to play the leading role in the beginning on the Gulf Coast were the seismic, employing the seismograph, and the gravimetric, employing the torsion balance. Of the two, the seismic method has, partly due to its rapidity and the fact that it was mostly applied on very likely prospects, the greater number of salt domes to its credit in the number of years applied. But a comparison of the number of acres covered by the seismograph and that covered by the torsion balance with the number of domes each has found will put a different light on the subject. The seismic method was soon to be followed by its close kin, the geophone method, which played an important role in the past year on the Gulf Coast.

Two other methods have followed the above, namely the magnetic method and the electric method. These two methods in the original application were used chiefly on ore deposits and later were tried on structure and salt dome work. Recently a new electric method has been brought forth by the Elbof Company which is calculated to find the oil itself. Other methods are being used but nothing is said as to the results.

The above methods and their respective instruments have gained commercial recognition and have all been given a trial on the world's testing grounds for geophysical instruments, the Gulf Coast of the United States and Mexico. The following will be a brief discussion of a bit of history of some of the methods and their instruments and the development among the different methods as a whole.

The Seismic and Later Geophone Methods

Notwithstanding the fact that the torsion balance preceded the seismograph on the Gulf Coast, the seismograph and the geophone were really the instruments to bring the greatest results. Contrary to the general belief, the seismograph was first applied on very difficult structural country instead on the more or less easily found shallow salt domes. Also in about 1922 microphone experiments were being tried out by Dr. Haseman for the Marland Oil Company and were successful on the Herrington limestone in the Mervine field in Oklahoma, but not so on the Wellington shales in this vicinity.

It was probably due to Dr. van der Gracht's activities more than anyone else that the Marland employed a scientific crew brought over from the "Seismos" company in Hanover, Germany, by Dr. Mintrop, its director, This company has had success on different kinds of structural work in Europe and especially on salt domes in Poland. In July 1923, upon the arrival of Dr. Mintrop, the writer, at that time an employee of the Marland, was put in charge of this work. After various moves about the Mid-Continent from northern Oklahoma down into North Central Texas and various results encouraging and otherwise had been obtained, it was finally decided to try the seismic method on the Gulf Coast in the search of Salt Domes. In March, 1924 the writer appeared with the first seismograph on the Texas Gulf Coast, another being at work at that time in Mexico. Work was carried out under the direction of Mr. Alexander Deussen and was extended over the greater part of the Texas and Louisiana Gulf Coast. Very soon afterwards the Gulf Production Company took up seismic work on a large scale and was followed sometime later by other companies.

The first results on the Gulf Coast were the finding of structural highs. Much interest was aroused in seismic work when one of these highs proved to be of Miocene age. Immediately with a great deal of work velocity tables were compiled by the seismic crew which were closely to coincide with the paleontologic and lithologic sections of the geologists. For instance, Miocene formations were regarded as having a velocity of so and so many meters per second, Pliocene was also given a characteristic velocity and so on. The Oligocene had not been taken into consideration as yet. At this point of agreement between the geologic results and those of the seismograph, a crew was sent into South Texas and again the characteristic velocities which were placed in the table as representing Miocene were encountered but here, upon drilling shallow test wells, the structures turned out to be, if any, in the Pliocene.

When these disappointments appeared, the scientists were no longer so sure of their geologic geophysical method of correlation, but one thing remained certain, salt domes could be found and the finding of Miocene highs were for the time abandoned for the mad search for salt domes.

Already in the early beginning of seismic work on the Gulf Coast, the possibility of finding deep salt domes had possessed the minds of the seismic crews. But they did not meet with a sympathetic ear until a little later and here again another chapter of the development of the seimic work comes in.

Certain areas shot by different companies were pronounced high velocity areas and the seismic people thought that a deep dome existed in depth. Several of these deep dome areas were drilled and nothing was found. Thereupon the seismic people discovered that formations in the Pliocene could have a velocity which might come very close to those of a deep salt dome. In better words, they were again brought up to the fact that their easiest and surest find was a salt dome in shallow depths and that when the deeper structures were brought into question, the chances of being right were less than in shallow dome work.

The "Seismos" Company scientists were at about this stage of the game when other companies began developing their own instruments and doing their own geophysical work. These different companies were up against the same difficulties in their instrument construction and designing that the "Seismos" people had gone through just after the war. In better words, recording instruments calculated never to leave good roads and to weight down a large ton truck were brought into communication with instruments strewn about over the fields by wires which served more to attract the attention of herds of cattle and to tangle up in the feet of the workmen than to

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More Than Heavy Duty Rig Required For Deep Drilling

Greater depths in the Gulf Coast is calling mechanical ingenuity of men into play; no place for "Rooky" drillers

By A. R. McTEE
Staff Representative

AS production of oil from greater depths becomes routine practice in the Gulf Coast, drilling problems grow more complicated. Not only does successful completion of the deeper holes involve heavier and more substantial equipment than is ordinarily used, but the mechanical ingenuity of the men in charge is constantly being called into play more and more. As one Coastal operator puts it, "The time is here when 'rookies' have not place as drillers." Sinking a well to below 4500 feet demands experience plus native mechanical sense.

Practice in drilling the deep holes varies with the company. A few concerns take no extra precaution other than the use of heavy-duty drilling outfits. One well was drilled to below 6300 feet at Spindle Top with only about 1300 feet of surface casing, without mishap. No other pipe went in the hole and no irregularities were encountered during the drilling. There are other companies that stress particular features when drilling deep wells, and there are still others in the Gulf Coast that are taking every possible step to insure against accidents and trouble in their deeper operations. And this seems the logical thing to do.

More than one company drilling where there is danger of gas blow-outs has adopted the practice of weighing the drilling mud twice daily. Each crew is required to weigh the mud and include the weight on the report which goes to the field office. All rigs of the Vacuum Oil Company at Lockport are equipped with a pair of scales and a special four-gallon bucket. Mud is sampled at the pit at the end of each tour, and as often during tours as the driller may think necessary.

The Pure Oil Company follows the same practice in its Sweetlake operations.

Mud Important

There is some difference of opinion as to the advantages of a very heavy mud and certain companies in the Gulf Coast are now carrying on research to see whether some substitute for mud can be found. However, since mud is necessary for rotary drilling at present, it should receive special attention, at least on the deep holes. This is the opinion of most coastal operators.

Experience, it seems, does not always count in judging the condition of drilling mud. For instance a near blow-out was prevented accidentally, in a coastal field, a short time ago because the driller had a hunch that the mud might not be of the right weight. He has many coastal wells to his credit and is ranked as a first class driller. He thought his mud was thick enough, in fact it barely flowed into the pit. Upon examination, however, the mud was found to weigh less than seven pounds, and was so puffy from the gas that had gradually worked into it that it was little more than foam. Luckily, this condition was discovered before the well blew out, and the light mud was replaced by mud of the correct weight.

Vacuum Oil Company keeps the mud used at Lockport at about 10½ pounds to the gallon.

As the Pure Oil Company nears the sand in its Sweetlake wells, weight of mud is increased to 14 pounds.

Operators agree that the mud should never fall below eight pounds, and yet there have been a number of cases in the Gulf Coast where the mud became as light as six pounds.

Once in a while when there is need for extra heavy mud to hold back exceptional gas pressure, oxide of iron is added. This practice is not in widespread use, however.

Naturally with a very heavy mud, there is danger of sealing off oil sands and thus passing up good shows. Where the field is well known though, and there has been sufficient drilling to give general correlation, there is little risk in this connection. Some operators have a theory that the heavy mud is forced back into the oil sand sufficiently to entirely seal off all possibilities of production. This would hold good only in wells with insufficient pressure to make them flow.

Bigger Holes Necessary

There is a tendency toward larger holes on the deeper wells. It is pointed out by various operators that for a well deeper than 4500 feet, the bigger the hole, the better. This aids in getting proper tests and also in deepening if such becomes necessary.

At Lockport, for example, where one of the highest pressure gas sands in the entire Coast is encountered at about 3700 feet, the wells are started with 18-inch bits. The hole is kept at this size through the marsh depth which is between 40 and 50 feet. Then 13⅜-inch casing, A. P. I. standards is used to approximately 1200 feet. Then between 3500 and 4000 feet, 9⅝-inch O. D. casing is set. This makes it possible to drill to 6000 feet if necessary, before setting 6⅝-inch.

Lockport production comes from 3100 feet, 3300 feet, 3700 feet (the worst gas sand), 4400 feet, 4800 feet, 5100 feet, and 5400 feet.

In this field, the middle casing is extremely important. It can be placed at any point up to 4000 feet, and gives the necessary foundation to carry the 6⅝-inch on down.

At Lockport, a 9-5/9-inch drilling valve, with a blow-out preventer is used on the 9⅝-inch casing, in fact each string of casing carries its drilling valve for the purpose of closing in the well if necessary, with a blow-out preventer. On the blow-out preventer, an extension is used which makes it possible to close off the well without the use of wrenches. For this purpose there is a three-foot wheel on the end of the extension. With this arrangement, a well can be controlled at considerable distance from the casing head. At Lockport there have been various instances where blow-outs would have undoubtedly occurred had the wells not been equipped with this apparatus.

Steam Requirements

Ample steam for operating the heavy-duty pumps and rotaries is a prime essential in deeper drilling. At Pierce Junction where the production depths ranges from 3500 feet to 4734 feet, most companies operate with two 66 horsepower boilers. The Rio Bravo Oil Company has a boiler plant which comprises four boilers, and maintains steam power at its drilling wells equivalent to between 130 and 150 horsepower.

Two boilers are standard equipment on all Lockport wells.

Use of Float Valves

Floating the casing in is rapidly becoming customary in the deeper holes where the enormous weight of a long string has to be considered.

One company is also using float valves in the drill stem to keep wells from coming in through the drill stem.

Deepening Without Sidetracking

Rio Bravo Oil Company has had noteworthy success in deepening wells without having to sidetrack. F-7 at Pierce Junction was completed at 3580 feet where it produced considerable oil from the Miocene. The hole was then deepened to 4281 feet without sidetracking, and is now producing from 4387 feet. A whipstock has never been in this hole.

At Spindle Top this company accomplished the same results in No. 3. First production in this well was from 2788 feet, but the hole was later drilled to 3599

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West Columbia Leads Gulf Coast in Yield Per Acre

Spindle Top, however, promises soon to pass record; big flush producers responsible for high averages

By JACK LOGAN
Staff Representative

ALTHOUGH it is a comparatively young field, being less than ten years old, West Columbia ranks first among the fields of the Texas Gulf Coast in production per acre, more than 64,000,000 barrels having been recovered from 275 acres up to August 1, 1927—an average of approximately 234,000 barrels per acre. An exceptionally high percentage of the wells in the field have been large producers, with 5,000 to 10,000 barrels initial production; and several were brought in for more than 20,000 barrels. The Texas Company's Abrams 1, actually gauged for the first time about five days after its completion, made 26,000 barrels a day; and the off-set to it, The Texas Company's Hogg 49, came in for 25,000 barrels.

But even more remarkable than their high initial production has been the unusually long life of the wells at West Columbia. The entire amount of 64,000,000 barrels that has been produced has come from only about 325 wells, the average production per well, therefore, being approximately 200,000 barrels. The highest ranking well of the field, not only in initial production but also in total yield, is The Texas Company's Abrams 1. A record of its production was kept by the company for two years after its completion in July, 1920, and during those two years it produced approximately 2,000,000 barrels. Since then the total yield of the well has increased to approximately 3,000,000 barrels. At the present time, more than seven years after its completion, it is producing about 200 barrels a day. Since a large part of its production sold for around $3 per barrel, the Abrams 1 has no doubt been more profitable than any other well in the world.

Spindle Top Crowding

In spite of its exceptional record in production per acre, however, West Columbia is due to be surpassed within a few months by Spindle Top. At the beginning of August Spindle Top's yield per acre amounted to nearly 227,000 barrels, all of the field's gross production of about 75,500,000 barrels having come from approximately 333 acres. Since it is producing about 1,800,000 barrels a month, however, the total production of the field is rapidly rising, and by the end of the year, the production per acre in the field will amount to considerably more than 240,000 barrels, while that of West Columbia will be slightly less than that amount.

Spindle Top, like West Columbia, has a remarkable record for unusually large producers. The Lucas gusher and the Heywood Brothers No. 2 were the largest wells ever completed in the United States. The former was variously estimated as making from 75,000 to 125,000 barrels initial; and the Heywood well is said to have gauged 8,000 barrels in two hours, or at the rate of 96,000 barrels a day; within 10 months it had produced 1,395,000 barrels. Numerous wells in the cap rock field were completed with from 5,000 to 15,000 barrels initial production.

Since the recent discovery of the deep sands, Spindle Top has set up unprecedented records in per acre production. Producing from approximately 68 acres, the new, deep field has yielded more than 27,000,000 barrels in a year and a half—an average for that section of the field of nearly 400,000 barrels per acre—and the total production is rapidly increasing.

The Rio Bravo Oil Company on an acre and a half in the new field has produced more than 3,500,000 barrels, or at the rate of about 2,500,000 barrels per acre; and the Gulf Production Company, on a six and one-half acre lease has produced over 5,000,000 barrels, or at the rate of nearly 900,000 barrels per acre. The Yount-Lee Oil Company, largest operator in the Spindle Top deep field, producing from 43½ acres, had recovered more than 14,000,000 barrels at the end of the second quarter of 1927, an average per acre of over 325,000 barrels. In obtaining this production, the company drilled 105 wells, 90 of which were producers with an average initial yield of more than 3000 barrels. There are from 30 to 40 acres at Spindle Top which are proven, but as yet undeveloped, being held entirely by the Yount-Lee Oil Company.

In spite of the unusually high productivity of the deep sand section of Spindle Top, the average yield per acre for the entire field is not quite as high, as stated before, as that at West Columbia.

The figures shown in the accompanying table were arrived at by consistently figuring in all acreage from which production has ever been obtained, and in the case of most of the fields, the total productive area includes considerable territory of relatively poor productivity, making the average per acre considerably lower than if only the main productive area were considered. In some of the fields the wells are close together, and the productive acreage is easily figured. But in

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TABLE SHOWING PRODUCTION PER ACRE IN ALL GULF COAST FIELDS

All fields listed are in Texas, with the exception of Jennings, Vinton, Edgerly, and Lockport, which are in Louisiana.

Field—	Number of acres that have been productive	Total Production in barrels, from discovery to Aug. 1, 1927	YIELD PER ACRE
West Columbia	275	64,302,882	233,828
Spindle Top	333	75,558,542	226,902
Jennings, La.*	242	39,106,815	161,598
Vinton, La.,	245	28,731,142	117,269
Hull	547	54,639,060	99,888
Orange	268	25,748,812	96,077
South Liberty|	80	7,436,630	92,958
Sour Lake	922	70,502,947	76,467
Goose Creek	880	60,489,475	68,738
Pierce Junction	91	5,886,197	64,683
Batson	565	33,574,787	59,601
Humble	1,870	99,083,277	51,916
Edgerly, La.	140	6,716,635	47,976
Saratoga	672	24,645,452	36,675
Markham	90	3,046,000	33,844
Blue Ridge	97	3,073,442	31,684
Lockport, La.	116	3,124,537	26,935
Big Creek	96	1,942,505	20,234
Boling	132	1,592,422	12,064
Barber's Hill	110	1,049,000	9,536
North Dayton	112	703,000	6,277
Nash	84	378,850	4,510
All Fields	7,967	611,332,409	76,737

*Also known as Evangeline.
|Includes South Dayton, both fields being around the same dome.

PERSONAL MENTION-MEN YOU KNOW

Forrest E. Gilmore, of the Forrest E. Gilmore Company, engineers, Tulsa, left late last week for a short business trip to Chicago.

J. C. McClure, assistant production manager for The Texas Company, Houston, spent several days last week in Tulsa on business.

Dean W. Cummins, 48, crude buyer for the Kay County Gas Company with headquarters at Fort Worth, died August 24 after a prolonged illness at the home of his sister, Mrs. W. J. Chubbuck at Hutchinson, Kansas. Cummins had been an employe of the Marland Interests since March, 1922, having served with the Marland Oil Company, and later as chief scout for the Marland Oil Company of Texas. Other survivors include Mrs. J. Q. Waddell of Kingfisher, Oklahoma, a sister, and one brother, C. Cummins. Funeral services were held Thursday at Hutchinson, and burial took place on the following day at Oklahoma City.

W. A. Trout, who is connected with the Emsco Derrick and Equipment Company, is spending several weeks in the Mid-Continent and Texas Panhandle fields. Mr. Trout is making an extensive survey for his company.

Joseph Jensen, chief geologist of the Associated Oil Company, with Los Angeles headquarters, is spending his vacation in the Sierra Nevada mountains.

Glenn Skinner of Tulsa, secretary of Black, Sivalls and Bryson, Inc., has been named treasurer of the company and H. E. Partch of Bartlesville, has been added to the board of directors. Mr. Skinner formerly made his headquarters at Bartlesville.

J. F. Larkin, 1101 Spring Arcade Building, Los Angeles, has been appointed West Coast sales representative for the products of the Walter O'Bannon Company of Tulsa, manufacturers of oil field equipment. Mr. O'Bannon has just returned to Tulsa from a trip to California and the Rocky Mountain States.

Dr. Lester C. Uren, Professor of Petroleum Engineering at the University of California, has been made Director of Research of the Ranney Oil Mining Company (Standard Oil Company of New Jersey.) Problems incident to the mining of oil by the Ranney process, particularly sand-permeability and forced drainage, will be studied at the principal laboratory of the company at Bayway, New Jersey. Professor Uren retains his position with the university.

E. A. Hinton, sales representative for the American Iron and Machine Works, Inc., with headquarters in Oklahoma City was in Houston for several days during the past week calling on Gulf Coast operators.

W. L. Schaeffer, advertising manager of the National Tube Company was in Houston this week enroute back to his headquarters in Pittsburgh following a trip to the West Coast and Mid-Continent fields.

Harry Norris, chief scout for Prairie Oil & Gas Company, Tulsa, is spending his vacation in Kansas.

W. L. Scott, vice-president and manager of the Plains Crude Oil Company, an independent crude marketing concern operating in the Texas Panhandle district, has resigned to become sales manager for the American Refining Company with headquarters at Wichita Falls.

C. F. DeBrunner, formerly with the United Iron Works, who has been identified with the steel storage tank and refinery equipment business for a number of years, is now associated with the Kaw Steel Construction Works, successors to the Kaw Boiler Works Company of Kansas City.

J. L. Gonon, general sales manager of the Duryea Manufacturing Company, Bayonne, New Jersey, and Erwin Goldschmidt, district representative, with headquarters in Dallas, were Houston visitors last week. Mr. Gonon has been making an intensive study of transportation problems in the oil industry for the past five years, and in company with Mr. Goldschmidt is making one of his periodical tours of the Mid-Continent and Gulf Coast fields.

H. W. Millmine, president of the Texas Rubber Specialty Company, spent the past week visiting the Mid-Continent fields.

L. D. Dalton of the D. & M. Machine Works got away from California and his business long enough to pay a visit to his Mid-Continent representatives, the Texas Rubber Specialty Company of Houston. Mr. Dalton left the early part of the week to return to California.

Charles Rae, office manager at Ventura for the Shell Company of California, has tendered his resignation, effective September 1. Mr. Rae was formerly mayor of Ventura and recently was elected a councilman of the city.

Mrs. Mollie Hamer, secretary to Adrian Moore, general manager of the Rycade Oil Corporation, went to Hempstead last week to spend a part of her summer vacation with her mother.

Angus McLeod, head of the geological department, and B. L. Ryan, manager of the land department for the Roxana Petroleum Corporation in Texas, Arkansas, Louisiana and New Mexico with headquarters at Dallas, visited the San Angelo field office of the company late last week in making a tour of active producing areas in West Texas and New Mexico.

James K. Remsen, assistant to the president of the Texas Steel Company of Fort Wotrh, Texas, and George W. Armstrong, plant superintendent, spent the latter part of last week in Houston on business.

W. R. Thomas of The Texas Company, in charge of the lease department, South Texas division, is now on a vacation in Los Angeles.

Wallace E. Pratt, vice-president and chief geologist of the Humble Oil & Refining Company, left Houston last week for a visit to his ranch in the Guadalupe Mountains, West Texas. He was accompanied by his two children.

D. E. Buchanan, vice-president of Chestnut & Smith Corporation, Tulsa, has just returned from a three months trip in Europe during which time he traveled pretty well over the Continent.

Pat L. McGreal, Gulf Coast correspondent for the Oil and Gas Journal during the past 15 years, died at Houston, August 27. He was 54 years old.

While standing at the desk waiting for the key to his room at the Cotton hotel, shortly after midnight, he was stricken with apoplexy, and died before reaching a hospital.

Mr. McGreal was born in Oil City, Pennsylvania, where he spent his early manhood as a telegraph operator. Later he went into the oil fields of Pennsylvania and worked on the derrick floor for several years. About 1905 he took a job with the Oil City Derrick, and from that time on was in the newspaper game.

In 1912 he came to Houston where he handled oil news for the Oil and Gas Journal and the Oil City Derrick. His work took him into all the Gulf Coast fields and his acquaintance was widespread among operators throughout South and Southwest Texas. He is survived by his widow and one brother. Burial was in Houston.

Well South of Barkersfield Indicates Accumulation

By ADDISON YOUNG, Geologist, and LEW SUVERKROP, Petroleum, Engineer,
Oil Fields Engineering Service

WHILE the Union Avenue well drilled by the Pacifis Eastern Oil Company immediately south of the Bakersfield city limits has not yet been made a producing well, it presents evidence indicating location over an accumulation of oil. Interest has, therefore, been directed toward consideration of geologic conditions which caused the accumulation which this well appears to be about to tap.

Unfortunately, there is a complete absence of the usual geologic evidence as to structural conditions. There are no outcropping strata upon which dips may be measured. Bakersfield is located in an area underlain by geologically young alluvial deposits. These younger deposits mask the older formations which may contain oil and which are involved in folds or faults, controlling accumulation. However, there are two lines of evidence of assistance in pointing out the probable location and something of the nature of geololigc structure in the region south and west of Bakersfield. These two lines of evidence are topography and character of the soil.

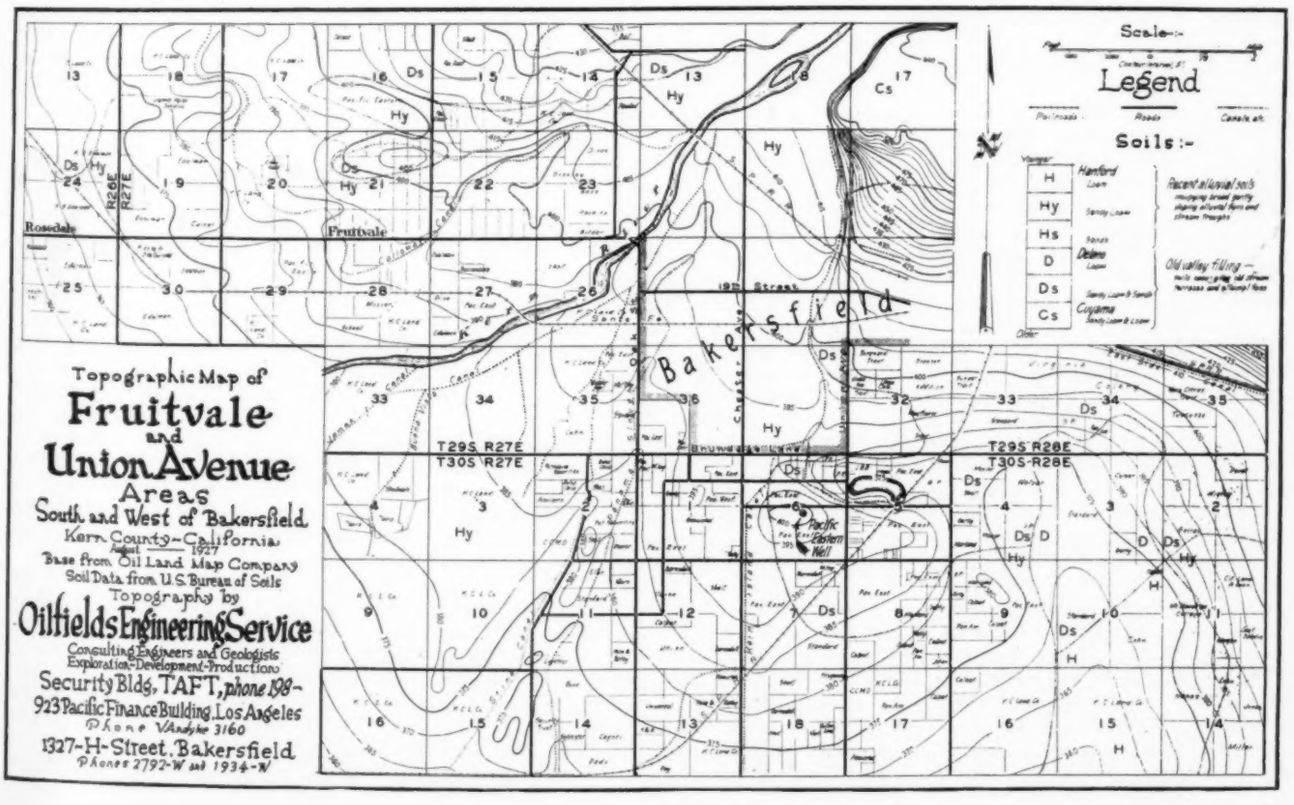
The accompanying map shows topographic and soil data suggestive of the possible structure to any familiar with the geology of fields in the San Joaquin valley. This map shows the topography with contours at five-foot intervals. Because of the extremely moderate relief a greater contour interval fails to disclose important topographic features.

If the central part of San Joaquin Valley were filled only with detritus brought down by streams from surrounding mountains, the surface of the valley would be a plain sloping always away from the mauntains, the gradients decreasing with distance from the mauntains. Of course, moderate irregularities such as those due to stream activities would be present. Such irregularities are the ones parallel to the Stine Canal in Township 30-27. But large departures from an ideal surface—for example such as Elk Hills, Lost Hills, and Kettleman Hills, require some other explanation.

In the cases mentioned, we know that the irregularities in surface are due to anticlinal folding. In the Bakersfield area there are no such large anticlinal hills, but inspection of the map discloses two "topographic highs" of magnitude sufficient to merit attention. The most important of these has its center in Section 6-30-28 about at the location of Pacific Eastern's well, and extends a mile or two in all directions. The second, known as Olive Knob, is located in Section 21-29-27, a mile north of Fruitville. These departures from the ideal surface of deposition may be due to some underlying structural condition, a possibility which deserves particular attention in San Joaquin Valley where geologic movements have taken place very recently, geologically speaking. If such is the case these two elevated areas mark the possible site or sites of oil accumulation.

The second line of evidence as to underlying conditions is that derived from a study of the soils. The soils of the Bakersfield area are divided into two distinct series of different ages. The older of the two, known as the Delano series, is composed of soils developed on old alluvial deposits. In this area such old alluvial deposits are those which were laid down by the predecessor of the present Kern River. The younger soils, known as the Hanford series, are recent alluvial deposits. In this area they are the deposits now being laid down or recently laid down by the Kern River. The distribution of these two series of soils in the Bakersfield area is shown on the map.

It will be noted that there are two peninsular-like extensions of the Delano series over ground otherwise occupied by the Hanford series, and that these two "peninsulas" coincide approximately with the two topographic elevations described in the preceding paragraph. This coincidence adds force to the suggestion that the two topographic elevations are due to



Cedar Creek Well Starts New Mexia Fault Activity

Wildcat makes 165 barrels of 35 gravity oil with heavy gas flow, opening seventh area in Mexia-Corsicana region

By H. H. KING
Staff Representative

MEXIA, Texas—The East-Central Texas fault zone was restored to activity during the past week by the successful completion of a wildcat oil and gas producer from the Woodbine sand horizon in a southwest direction from the Nigger Creek field and west of the Mexia fault. Although still in a semi-completed stage, this wildcat producer opens the seventh field in the Mexia-Corsicana district with an initial flow of about 10 million cubic feet of gas and 165 barrels of 35 gravity oil daily from three feet of sand at a total depth of 2879 feet, and is being offsetted by fo tests.

W. A. "Bill" Reiter, consulting geologist of Mexia, Will I. Lewis, veteran wildcatter on the fault line, and the Moutray Oil Company of Abilene, Texas, established the new field on the afternoon of August 24 after bailing their R. P. Ward 1. The well blew in making about 15,000,000 cubic feet of gas, and at 6 p. m., or about three hours after bailing, the oil production put in its appearance, making 90 barrels during the first 12 hours. The oil production averaged 165 barrels daily on Saturday and Sunday with about eight million cubic feet of gas in evidence. This gas tests about .64 of a gallon of natural gasoline per 1000 cubic feet.

Pure Oil Pipe Line Company has extended a six-inch line from its Nigger Creek field gathering station to the wildcat producer, and will be able to gravity the oil to the booster station now serving Nigger Creek producers.

This new producing area has been named the Cedar Creek field, obtaining name from a nearby creek that runs parallel with the fault on which the well is located. The owners of the discovery well are starting a west offset on the 50-acre lease bearing the producer, and offsets are being started by the Rycade Oil Company, Transcontinental Oil Company and the Why Not Oil Company-Forty-Four Oil Company interests (J. K. Hughes et al.) Other locations are pending, and if successful completions are made by the first group of locations the usual fault line drilling rush will follow.

The Nigger Creek field is the nearest oil production to the wildcat producer, which is located on a separate line of faulting and about one and three-quarter miles to the southwest of the lower end of the former field. According to Reiter, who is a co-discoverer of the Mexia field and a veteran geologist in the fault zone, the new field is expected to cover an area at least equal to the Nigger Creek field, while the fault bearing the former field has a greater displacement than the one to the northeast. Reiter and Lewis blocked about 250 acres of leases around the Ward location after working up the surface and subsurface data, and the Moutray Oil Company took a half interest in the entire block. The latter company has a production organization and will operate the property. R. H. Dearing & Sons, Dallas contractors, drilled the discovery well, and were carried for a minor interest in the well and 50-acre lease.

Two abandoned tests drilled some years ago by the Ranger-Caldwell and Big Williams interests straddle the structure now furnishing production in the Cedar Creek area, and the former test is believed to have been in the money if carried down to the Woodbine sand horizon, as it logged the top of the Austin chalk at 2560 feet, with a surface elevation of 524 feet and was abandoned in chalk at 2790 feet. The Big Williams test, located on the Lewis 70-acre tract and about 2200 feet southwest of the Ranger-Caldwell test, logged the top of the chalk at 2050 feet, with a surface elevation of 487 feet, and broken Woodbine sand at 2885-2979 feet. The latter test encountered streaks of oil sand, and is believed to be on the ragged edge of the production structure. The position of these two abandoned tests and their relation to the discovery well is shown by the accompanying map. This fault is known to have an excellent closure on the north end, but the south end is not so prominent, while sand conditions will determine the prolificness of the field to a large extent.

The Ward discovery well logged the Austin chalk at 2156-2464 feet, with a surface elevation of 500.2 feet, and cored three feet in the Woodbine sand at 2879 feet with an Elliott core barrel before cementing six and five-eighths-inch casing at 2861 feet. The bottom of the hole has not been carried below the cored depth. A standard rig has been ordered in to drill the well into the sand as soon as the gas pressure declines.

The Nigger Creek field has produced 2,333,009 barrels of oil up to August 1, having been discovered July 8, 1926, and has yielded 13,723 barrels of oil per acre during this period. The entire Mexia-Corsicana fault line district has produced 209,243,060 barrels of oil since the discovery of the Mexia field in November, 1920. The Nigger Creek and Cedar Creek fields are on a separate zone of faulting from the other five fields in the district.

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structure. A possible sequence of events would be:

1. Alluival fan deposition of Delano time.
2. Slight uplift along a northwest-southeast line running through Olive Knob and Section 6-30-28.
3. Deposition of Hanford time.

The evidence of the topography and of the soils thus suggests that in the vicinity of Pacific Eastern's well, and at Olive Knob there have occurred structural movements, and the two areas may be on the same structural line.

The foregoing, in conjunction with the findings of the Pacific Eastern well, makes it appear possible that these two areas are the loci of structural "highs" along a structural axis, with a structural "low" in between. The present course of the Kern River may have been determined by the occurrence of such a structural depression between higher areas on either side. In this connection, some of the findings at the Pacific Eastern well are of especial interest. Particularly the apparent presence of large quantities of gas at high pressure, with a moderate amount of oil of moderate gravity, would tend to add force to this hypothesis rather than leading one to think of a continuous ridge or single "high" between Union Avenue and Fruitvale.

Water Shortage Holds Up Dale Drilling

Houston—Because of the scarcity of water, activity in the new serpentine field east of Dale, Caldwell County, was still limited the first part of this week to three drilling operations. On Tuesday the Sun Oil Company's Beaty 1 was drilling at 1600 feet; its Tally 2 was down to 2196 feet, with casing set and cemented at 2107 feet; and Murchison & Fain's Copeland 1 was drilling below 550 feet. The discovery well of the field, The Texas Company's Beaty A-1 was making 80 barrels a day on the pump.

Further activity was expected to begin immediately, however; particularly on leases of The Texas Company. Four derricks of that company, including the Beaty A-2, the Clingingsmith 1, the Lackey 1, and the Beaty B-1, were rigged up Tuesday, ready to drill as soon as water could be obtained. On the previous day The Texas

Company had ordered a shipment of water for use in the field, and drilling was expected to begin Wednesday or Thursday. The water is to be moved by rail from Lockhart to the town of Dale, whence it is to be conveyed to the field by a pipe line which has been put down for the purpose. In addition to the water that will be freighted in, The Texas Company will obtain some water from wells in the field. Water is found at about 60 feet, but in such limited quantity that about three wells are required for a drilling rig. The cost of pumping water from these wells, having to use several for each rig, would be somewhat high, and the volume that they will furnish is uncertain; hence they will not be depended upon as an important factor in furnishing water for the field. For a while, at any rate, it will continue to be freighted in. Some of the water that is being used in the field at present is being shipped in from Smithville, but The Texas Company will obtain its supply from Lockhart.

Six or seven new locations have been made in the field during the past week, bringing the total up to about 20. The Texas Company's Clingingsmith 2 and 3, and Lackey 2 and 3 on Tuesday were derricks; Wheelock & Collins' Beaty 1 was a location; and derricks were up for Weinert et al's Taylor 1, and Atlantic's Moore 1 and Astien 1.

Burbank Extension Well Holding Production

Tulsa—George Parker's No. 1 wildcat in the northeast corner of the northwest of the northwest of section 11-26-6, which extended the Burbank pool two weeks ago, making 555 barrels in 12 hours from 2807-24 feet, is holding up well and made 45 barrels an hour with a rate of 11,000,000 cubic feet of gas August 27. This well is surrounded by unsold Osage lands.

SHOWING THE LEASE OWNERSHIP AROUND THE CEDAR CREEK FIELD, LIMESTONE COUNTY, DISCOVERY WELL, WHICH OPENED THE SEVENTH WOODBINE SAND PAY FIELD IN THE EAST CENTRAL TEXAS FAULT REGION. THE SOUTH END OF THE NIGGER CREEK FIELD IS SHOWN NORTH OF THE RIVER.

Yates Field Operators Will Favor Proration Agreement

Straw vote indicates that curtailment will result from conference at Fort Worth; intensive drilling coming if agreement should fail

SAN ANGELO, Texas—The release of a flood of oil now in sight for the Yates shallow field, Pecos County, hinges on the outcome of a second meeting of lease owners in Fort Worth on the morning of September 2 to decide on a general shutdown agreement. A straw vote taken among the lease owners that will figure in the flush production reveals that the majority will approve the plan to limit daily production to available market outlets. However, if the proposed shutdown agreement fails, a number of companies have made tentative plans to cut loose with a drilling program, and store the crude that can not be marketed.

The 17 flowing wells in this field are rated good for approximately 100,000 barrels daily on open flow, but are pinched to less than 6000. The pinching of wells is not harmful to production, as the flow of oil from wells opened at intervals continues at the high marks.

Five locations have been made near the Redbank Oil Company Smith 1, which was reported last week as having widened the Yates field two and three-quarter miles to the southwest. The Redbank well flowed 350 barrels of oil Sunday after drilling 43 feet in the lime pay to a total depth of 1624 feet. This well logged the big lime at 1471 feet, with a surface elevation of 2706 feet.

Roxana Petroleum Corporation has started a direct offset to the north, while Mazda and the Savoy Oil Company are starting two tests on a line to the east, thereby giving Roxana two more locations to offset.

The current drilling report for this field shows 24 locations, rigs and drilling tests, and all are believed to be on proven locations.

Allsman and Bell's river bed producer which has been flowing 160 barrels daily for some weeks, was shot with 90 quarts in lime pay early this week and bridged the hole. This well offsets two producers on the west bank of the river rated at 500 barrels per hour each.

Hendricks Field

The Hendricks field, Winkler County, has been slow in coming through with extension wells that are counted upon to materially increase the size of the producing area. Southern Crude Oil Purchasing Company's Hendricks 1 "B" (section 4), added one and one-half miles to the south end of the field early this week with a light producer from regular lime pay at 2785 to 2843 feet, and is drilling ahead, with five nearby offsets well under way.

Heavy gas production in the Texon Oil & Land Company's Grisham-Hunter 1 "A" has delayed the completion of this test at 2814 feet, and the gas flow is rated above 30 million feet.

Gulf Production Company contracted on August 19 to sell 100,000 barrels of Winkler County crude to Southern Crude Oil Purchasing Company at a flat price of 65 cents per barrel, deliveries to be made at the rate of 750 barrels daily.

Gulf has one completed well, and has seven tests shut down in the big lime, in accordance with agreement made some weeks ago.

Production in the Church & Fields area, Crane County, is being limited to pipe line outlets and field storage facilities, and during the past week the completion of a number of new tanks enabled the operators to establish a new peak of 86,250 barrels daily. Simms Oil Company & Atlantic Producing Company's joint properties in the field played a prominent part in this new peak, as their production was allowed to run above 32,000 barrels daily when tankage permitted. This property exhausted its surplus storage room late last week and had to be pinched to 17,000 barrels daily until more 55's are made available. Humble is taking 10,000 barrels daily on contract. Prairie Oil & Gas Company's University-Lassiter 3, which was reported in these columns last week as having gauged 500 barrels per hour for two hours from top pay at 2800 feet, and then shut in for storage, has not been opened up for a full 24-hour gauge. However, this well materially increases the potential production for Prairie, and will result in more tankage being provided to accommodate the oil being prorated by Humble. Landreth Production Company's State Strip 11, which has been an unusually heavy producer since August 9, is holding at 7700 barrels daily, according to late reports from the field.

Drilling Slows Down

Drilling operations in the Church & Fields area are gradually dropping to smaller proportions, and the latest reduction in crude prices discourages unnecessary tank building, since 55's cost about $2000 more when set up in this field than when built near a railroad. Most of the offset locations have been covered off with drilling tests, and the property line between the south end of the field and the Gulf-McElroy lease has been almost drilled up. The drilling of this string of offset locations was responsible for the second peak being established in the Church & Fields area.

The Southeast McCamey district added several big wells during the past week, but the flow had to be choked to a minimum account of the encroachment of b.s. and water. Gulf Production Company's Lane 4 gauged 260 barrels of fluid, containing 6 per cent b.s. and water during first hour at 1960 feet, and was making 28 per cent cut oil when pinched to 60 barrels per hour. Champlin Refining Company, Enid, Okla., scored its first West Texas production by the completion of Lane 1, making 80 barrels per hour, 4 per cent cut oil, from regular lime pay at 1920-64 feet. The successful completion of big wells in this area has resulted in the Orient Railroad making an effort to drill up its right-of-way which cuts across the Lane lease. The Orient also made an effort to get permit to drill on an abandoned right-of-way of the J. M. Perry land, but met with opposition.

Start New Test Near Gas Fire at Hackberry

Houston. — Calcasieu Oil Company began erecting a derrick late last week for their Caldwell 2 well at Hackberry, Cameron Parish, Louisiana, the location of the well being 250 feet west of the Caldwell 1, the wildcat which recently blew out, making an estimated 25 million cubic feet of gas with a spray of oil, and subsequently caught fire, burning for two days before finally dying out.

These wells are about 26 miles southwest of Lake Charles, and 14 miles south of Sulphur. They are approximately two miles east of the old Hackberry dome, around which there has been drilling intermittently since about 1902 without the discovery of production in paying quantities. Hope of finding oil on the old dome has not been altogether abandoned, however, as evidenced by the fact that the Yount-Lee Oil Company is drilling on the north slope of the dome. This Yount-Lee test, known as the Black Lake 4, is about two and one-half miles west of the Calcasieu Oil Company's locations.

All of the acreage immediately around the well which burned is held by the Calcasieu Oil Company, the nearest acreage being held by the Gulf, a lease located about 3000 feet to the north. The Louisiana Land & Exploration Company has a lease a little over a half mile to the east, on the bed of Big Lake.

Little River Checks Seminole Production Decline

Big well in Earlsboro section indicates decline there not so pronounced; field responds when lid is lifted

By WALLACE DAVIS
Staff Representative

TULSA,— Completion of Little River's second and third producer near the close of the past week suddenly throws a new light on the production situation of Greater Seminole. The downward trend of four weeks, caused mainly through natural decline aided by proration measures, has been abruptly broken and the daily yield for August 28 ran 19,168 barrels higher than that of five days previous.

Blackwell Oil & Gas Company's Nitey 1, located in the southeast corner of 35-8-6 and a northwest offset to the House 1, discovery well of the Indian Territory Illuminating Oil Company, began flowing 75 barrels an hour from two feet of Wilcox sand topped at 4229 feet Saturday, and Monday morning was holding to 1800 barrels a day. On the heels of this well Indian Territory Illuminating Oil Company's Dugan 1, southeast of southwest of southeast of 35-8-6, started flowing after barely entering the Wilcox at 4220 feet and gauged 140 barrels in 40 minutes. Monday this well was making at the rate of 140 barrels an hour. It is one location north and three locations west of House 1, putting it approximately a quarter of a mile to the west and slightly north of the discovery well.

Little River's discovery well Saturday made 7806 barrels of oil, a low mark reached following a gradual decline which started several weeks ago when water developed. The highest yield of water in a single day from the well has been 255 barrels and that amount has not increased within the past week. The well, less than 10 weeks old, has produced in excess of 600,000 barrels of oil from 11½ feet of Wilcox sand topped at 4017 feet.

Guessing

The outstanding significance of the performance of Blackwell's Nitey well is the fact that it is making no water from a producing horizon practically 200 feet lower than that of the House 1 on a location 330 feet away. This beats Oklahoma producers to the extent that predictions on what Little River's possibilities will be are lacking. It is pronounced to be more erratic even than Earlsboro, which during its early rush headed the list of known fields in the State for illogical results, giving up a 5000-barrel well in the middle of a number of dry hole locations.

Simultaneous with the production hazard of a flood of new oil from previously non-productive area of Greater Seminole area's outskirts comes proof that the inside area is not so greatly weakened as many thought. Prairie Oil & Gas Company's O. Graham 3, center of Earlsboro's proven acreage, came in Sunday flowing an initial yield of 400 barrels an hour, pipe line crude, from five feet of Wilcox sand topped at 4252 feet.

Seminole production is flowing wide open. The lid was taken off at the close of the week in order that what proration was in effect might be elimi-

SEMINOLE DISTRICT PRODUCTION

24 Hours Ending August 27, 7 a. m.

SEMINOLE POOL

Company—	Production
Carter Oil Company	30,870
Amerada Petroleum Corporation	3,212
Atlantic Oil Prod.	650
Barnsdall Oil Corporation	6,414
Empire Gas & Fuel Company	1,838
Gypsy Oil Company	5,583
Independent Oil & Gas	975
Independent & Garland	570
Independent and Inter-Ocean	495
I. T. I. O.	5,265
Kingwood Oil Company	1,558
Magnolia Petroleum Company	1,630
Mid-Continent Petroleum Company	437
Mid-Kansas Oil & Gas	866
Phillips Petroleum Company	2,965
Prairie Oil & Gas	1,750
Pure Oil	8,051
Roxana Petroleum Corporation	431
Sinclair Oil & Gas	3,505
T. B. Slick	6,609
Superior Oil & Gas	695
Texas Company	200
Tidal Oil Company	3,019
Turman Oil Company	2,806
Total	81,394

EARLSBORO POOL

Company—	Production
Amerada Petroleum Corporation	9,100
Barnsdall Oil Corporation	30,203
Carter Oil	1,190
Continental Oil Company	6,295
Crosbie	897
Empire Oil & Gas	3,440
Gypsy Oil	7,916
Independent Oil & Gas	40
Independent-Margay	13,950
Independent-Darby	1,370
Independent & Inter Ocean	410
Magnolia Petroleum	23,950
Mid-Continent Petroleum	5,750
Phillips Petroleum	2,379
Prairie Oil & Gas	14,523
Roxana	5,127
Skelly Oil	10,425
Texas Company	8,312
Tidal	5,875
Twin State Oil	3,050
Total	156,790

SEARIGHT FIELD

Company—	Production
Carter Oil Company	11,025
Gypsy Oil Company	860
Mid-Continent Petroleum Company	2,885
Prairie Oil & Gas Company	1,454
Pure Oil Company	5,375
Roxana Petroleum Corporation	2,620
Sinclair Oil & Gas Company	2,300
Twin State Oil Company	480
Wilcox Oil & Gas Company	3,698
Total Searight	30,688

BOWLEGS POOL

Company—	Production
Amerada	7,050
Atlantic Oil Prod.	7,543
Barnsdall Oil Corporation	2,672
Carter Oil	28,530
Empire Gas & Fuel	4,940
Gypsy Oil	7,481
Independent Marland	510
I. T. I. O.	31,272
McColloch	500
Mid-Continent	5,254
Minnehoma	3,515
Prairie Oil & Gas	12,215
Pure Oil	13,696
Roxana & Houston	3,490
Shaffer Oil	1,538
Sinclair	21,591
Texas Company	7,845
Tidal Oil	2,755
Twin State Oil	2,245
Total	164,983

Summary

Seminole	81,394
Little River	7,806
Earlsboro	156,790
Bowlegs	164,983
Searight	30,688
Grand Total	441,661

nated to give the area a chance to again rise to 450,000 barrels, the figure originally set by the proration committee as a mark of safety to producers. This action, coming as it did at the time of several spectacular producers, more than did the work of reestablishing the accepted mark. Sunday the daily yield of the area was running at 455,369 barrels, an average of 621 barrels from 733 producing wells.

Work at Seminole

There were 451 wells drilling, 75 rigs up and 20 locations were made in the Seminole vicinity during the week ending Saturday. Included in the wells now going down are 195 drilling below 3700 feet, 90 between 3100 and 3700 feet, 72 between 2000 and 3099 feet, and 94 drilling below 2000 feet. It is of outstanding interest that 10 of the wells nearing completion depths are in the Little River area, this number having standardized with cable tools at approximately the 3800 foot level.

Three wells now drilling at Little River are expected to greatly determine the field's production power within the coming week. Blackwell Oil & Gas Company's Nitey 2, 35-8-6, was drilling Monday morning of this week in the top of the Sylvan at 4016 feet. Indian Territory Illuminating Oil Company's M. A. House 1, in 1-7-6, was in black shale at 3950 feet Monday, and Amerada's Nitey 1, in 2-7-6 had topped the Woodford shale at 3900 feet at that time.

Interest shifted considerably Monday to the Philmack Oil Company-Superior Oil Company wildcat test one mile northeast of Earlsboro pool. Formations were running practically identically like those of Twin State Oil Company's 2-9-5 producer of 5000 barrels, which after excellent production of some weeks is now making 3050 barrels. The Philmack-Superior wildcat, located in 1-9-5, topped the Mayes lime at 3925 feet and Monday was drilling at 4060 feet, running closely the log of the Twin State well, which is the nearest production to this wildcat.

T. B. Slick's 1-6-6 wildcat, roughly seven miles south of Little River, which early last week developed a difficult fishing job at 3966 feet, was reported removing the tools from the hole Sunday morning. Important significance has been attached to this wildcat since it has found formations running unusually high. However, the formations running high at this location apparently offer much for production inasmuch as these formations outcrop 30 or 40 miles south of the field.

A comparison of production by fields in the Greater Seminole area for Sunday, August 28, with that of Tuesday, August 23, is given in the following table:

Field—	August 28	August 23
Earlsboro	165,905	154,063
Bowlegs	165,106	168,851
Seminole City	81,580	72,253
Searight	30,361	29,383
Little River	12,417	8,151
Totals	455,369	436,201

Runnels County Wildcat Makes 40 Gravity Oil

San Angelo, Texas—Runnels County contributed a wildcat oil producer late last week, flowing by heads at the rate of 150 barrels daily of 40 gravity oil, from sandy lime at 2545 feet.

This well is located about five miles northeast of Ballinger, and about 30 miles southwest of the nearest oil production in Coleman County. C. E. Sillix, C. R. Dutton and a group of Ballinger citizens took over this test a few weeks ago after it was carried to contract depth of 2500 feet by Ladd, Hill and Simon of Fort Worth. The latter retained a small amount of acreage around the location in turning their drilling block to the Ballinger parties.

The Runnels County wildcat producer is located in the north-central part of section 532, Domingo Diaz survey, and far removed from any other development. Marland Oil Company and Owenwood Oil Corporation are among the close in lease owners. While a number of leases have changed hands since the well began flowing by heads. Storage is being erected at the well, and deeper drilling will take place shortly. This is one of the few instances that an abandoned wildcat test has been carried deeper and made to produce oil or gas.

Logan County Well Makes 2550 Barrels

Tulsa — Roxana Petroleum Corporation's McCully 1, discovery wildcat in northwestern Logan County, was producing 2550 barrels pipe line oil August 27 from its depth of 5987 feet with tools still in the hole.

Seventeen operations are reported in the area of this producer, location of which is in section 30-19-4w, including three locations staked during the past week. Among the locations are two of the Twin State, which will drill in the southwest of the northeast of the northeast of 33-18-4w, in the Crescent area, and in the northwest of 20-19-4w, an offset to Roxana's Freelove 1, in section 17-19-4w. Sinclair and Barnsdall will drill a well jointly in the northeast of 28-18-4w, an offset to the discovery well of the county, Sy Moore 1.

Two wells in the area were looking like producers at the close of the past week, Pawnee Petroleum Company and Jack Bailey et al's Lovell Townsite 1, southwest of 9-18-4w, began showing oil in the Layton sand at 4650 feet, nearly 100 feet higher than the same sand was found in Roxana's McCully 1, and Welch, Acton and Brown's Hull 1, northeast of the southeast of 11-18-4w, was preparing to set eight-inch casing at 4383 feet after topping the Stalnaker sand at 4251 feet.

Carter Oil Company's Rogers 1, southwest of the northeast of the southwest of 32-19-3w, due east of Lovell, is one of the deepest holes in the State, drilling in lime at 6086 feet Saturday. Roxana was rigging up Freelove 1 in the southwest of southwest of southwest of 17-19-4w. Roxana's Stephens 1, southwest of southwest of southwest of 29-19-4w, was drilling Saturday at 2879 feet, Sabronek 1, southeast of southeast of northeast of 30-19-4w, was down 3167 feet, and Williams 1, northwest of northwest of northwest of 32-19-4w, was drilling at 1435 feet.

L. H. Wentz's Williams 1, northeast of northeast of northeast of 31-19-4w, was drilling at 2900 feet. Bryan & Emery were installing rotary on Scott 1 in the center of the northwest of southeast of 33-18-4w, to resume drilling at 4500 feet.

In the Crescent area T. P. Coal & Oil Company's Speaks 1, southeast of southeast of northwest of 33-18-4w, was making 50 barrels of oil, cutting considerable water, and 5,000,000 cubic feet of gas from 4143 feet. Blackwell Oil & Gas Company's Sade 1, northeast of northeast of northwest of 28-18-4w, was drilling at 3280 feet.

Ramsey Brothers and J. V. Bailey's Lovell 1, southwest of southeast of northeast of 16-18-4w, was drilling at 2185 feet.

Wood, Gilbert and Wood's Gragg 1, southeast of 16-18-4w, is holding up at 16,000,000 feet of gas and 50 barrels of 56 gravity oil daily.

Gulf Coast Completions Show Big Gain

Houston.—Field activity in the Texas Gulf Coast area was considerably greater during the past week that it has been for several months, a total of 18 completions being reported for the period, of which 12 were producers, with a combined initial yield of 9232 barrels.

Spindle Top ranked highest in yield of new production, with a total of 4007 barrels from three producers, including Gulf Production Company's Oakwood Realty Company 11, initial yield 2522 barrels; and Pierce Junction followed Spindle Top with 3725 barrels initial from three producers, including Navarro Oil Company's Cain 2, initial 2000 barrels, and J. F. Bashara's Bashara Fee B-1, 1275 barrels.

During the preceding week completions numbered eight, including one failure and seven producers—yielding a combined initial of 6935 barrels; while during the week before that, there were eight completions, four being failures and the other four having a combined initial of only 705 barrels.

Texas Gulf Coast fields other than Spindle Top and Pierce Junction which yielded new production during the past week were Goose Creek, Barber's Hill, Sour Lake, Hull, Orange, and High Island. The producers at Barber's Hill, Sour Lake and High Island furnished the only new production that has been obtained in those fields in several weeks.

The Louisiana section of the Gulf Coast, on the other hand, showed a decrease in activity, only one completion being reported for the whoel area —Vacuum-Gulf's Miller 9 at Lockport, completed at 4475 feet for an initial production of 1365 barrels.

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Pontotoc County Pool Extended

Tulsa.—W. R. Ramsey et al's Milner 1, located in the southeast corner of the northwest of the southwest of 17-5-8, extended the Allen pool, Pontotoc County, slightly to the northwest with completion for 50,000,000 cubic feet of gas from 2331-33 feet. Ramsey's Webb 1 in the northeast corner of the southwest of 25-5-8 was making 25,000,000 feet of gas and 100 barrels of oil from 2446-73 feet early last week.

Shaffer Oil & Refining Company's Graham in the southwest corner of the northwest of the northwest of 16-5-8, Pontotoc County, made 340 barrels with a small water content during the week from 2441-48 feet. The oil tests 32.5 Baume gravity.

Louisiana Oil & Refining Corporation's Harjo 3, in 17-5-8, made 10,000 cubic feet of gas and 100 barrels of oil from 2338-90 feet.

Wildcat Opens New Shallow Area in Kansas

Wichita, Kansas.—Livingston et al's Luckman 1 wildcat, located in the southwest corner of the southeast of 11-9s-16w, Rooks County, has opened a new shallow area 18 miles west of Great Bend and 15 miles northeast of the Russell field, pumping 50 barrels every 12 hours without being able to lower the oil in the hole.

Eleven thousand barrels storage had been erected on the location August 25, and five offsets are expected to begin drilling within the next two weeks.

Second Well Points Big Pool in Noble County

Tulsa.—The possibilities of a new productive area ranking among the major fields being developed around Marland Oil Company's Garber 1 wildcat, which has been making 210 barrels daily for six months from 5263 feet in section 19-23-3w, three miles northeast of the Garber-Covington field, Garfield County, is seen following completion of the first offset well, Whipple 1 of the Marland, August 26. This offset began slopping 50 barrels from the top of pay encountered at 5298 feet August 24. After drilling six feet deeper the well increased to 90 barrels daily, and on the afternoon of August 26 ebgan flowing 90 barrels an hour from 5306 feet. Whipple 1 is located in the southwest quarter of the same section as the discovery wildcat.

Opening of this new production does not mean an extension of the old Garber-Covington area but opens an entirely new pool, according to the belief of geologists, who have made a study of the area. The two wells are between the town of Garber and Billings, northwestern Noble County.

Two other wells are now drilling as offsets to the Garber 1 discovery well, the Champlin Refining Company's Wilcox 1, in the northeast quarter of the section, and Skelly Oil Company's Wilcox 1 in the northwest quarter, both of which are nearing the sand. Champlin Refining Company's well was reported drilling at 5084 feet August 26, while the Skelly-Wilcox well was near the same detph.

The Champlin Refining Company, Enid, was completing a four-inch line to the well Friday night, and had a six-inch line under construction.

The daily average run of crude from the Garber-Covington pool is now around 9200 barrels, representing a drop from slightly above 90,000, its peak two years ago.

Kewanee Shuts Down on Burbank Lease

Tulsa.—The Kewanee Oil & Gas Company has inacted a shut-down program all its own in its Burbank extension area, and, according to present plans, will not produce oil there until better demand brings better prices This company owns a solid block of 640 acres where phenomenally large producers have been drilled. On this tract which comprises the entire section, 34-27-6, Osage County, the company has eight wells drilled to the top of the prolific Burbank sand, and has shut all of the wells down. The pay sand was encountered in these wells from 2727 to 2843 feet.

Wildcat Goes Dead

Tulsa.—Conservation Oil Company's wildcat producer on the Graham farm to the north of Ada, Pontotoc County, in the southwest corner of the southeast of Section 21-5-6, went dead last week after producing more than three months. This well, credited with opening a new pool in the center of a large block of acreage held by several major companies, has been put on the pump, and made 250 barrels, seven per cent salt water, August 25.

Burbank Production

Tulsa.—The Burbank pool with 2003 wells producing, had an output of 37,903 barrels, a well average of slightly more than 18 barrels, during the week ending August 24. This production represents a loss of 196 barrels in daily average as compared with the previous week with one new well added.

Burbank field, Osage County, has 1813 wells making 32,113 barrels; the Kay County extension has 190 wells making 5790 barrels, and South Burbank, or Fairfax field has 20 wells making 826 barrels.

Tonkawa field had 729 wells producing during the week with a total of 19,738 barrels daily average, Otoe had 31 wells making 1828 barrels, Thomas had 20 wells making 4692 barrels, Hubbard had 70 wells making 4683 barrels, North Braman, 91 wells with 3139 barrels, and South Braman, 36 wells making 3861 barrels.

Kansas Wildcat Operators Increase Activity

Wichita, Kansas.—Increased wildcat activity, principally by independent operators, is due to start in Kansas, most of which is to be confined to Greenwood County, within the near future. It is seen that this activity is the outgrowth of fairly keen competition of Kansas refiners for crude through the present period of depression despite the flood of oil at Seminole.

Mendenhall et al are preparing to drill Hoggat 1, in 16-25-13, south of Quincy in central eastern Greenwood County. W. W. Kiskaddon, Wichita independent, has staked a location for Wilkinson in 6-26-9, slightly more than a mile southeast of the Ladd pool, Greenwood County. Bissangno et al have a location for their Roberts 1 in 10-25-13, two miles east of Quincy, on the Woodson County line. Frank Wahn et al are ready to spud the Westfally 1 in 2-26-10, just east of the Eureka townsite play. In an effort to open production between the Seeley and Damalorie-Souder pools in northern Greenwood County, Phillips Petroleum Company have made location for Harris 1 in the center of the north line of the northeast of the southwest of 19-22-11.

The White Crow Oil Company has a location for Townsend 1 in the northwest of the northeast of the southwest of 31-21-4, one location east of a dry hole and two miles southwest of the Peabody Pool, Marion County. Mentor Oil & Gas Company has made location for a wildcat on a 5000-acre block in 17-15-2w, southern Saline County.

Blackwell Oil & Gas Company was drilling early last week at around 900 feet in its Meade County wildcat, which is located on a 40,000-acre block in the center of the southwest of 9-33-28w, the first oil test for this southern Kansas County.

J. C. Findeiss' Crotts 1, in the southeast of the southwest of 8-24-7, near Partridge, Reno County, is underreaming at 3710 feet.

Keys Petroleum Company's Baxter 1, located in the southwest of the southeast of 32-13-15, was reported on August 24 as drilling near the Oread lime around 3060 feet. It is near Gorham, western Russell County. Hawes & Ainsworth, Stearns-Streeter, and the National Refining Company's Gorham 1, in 6-15-15, a wildcat south of Gorham in Russell County, was drilling August 24 at slightly below 1000 feet.

Magnolia Builds Line

Shreveport. — Magnolia Petroleum Company expects to complete a 15-mile four-inch branch line from its main at Bull Bayou to Pleasant Hill, bordering on the Sabine and De Soto Parish line, early in September.

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McPherson County Wild-Cat Has Oil in Hole

Wichita, Kansas.—The Texas Company's Chinberg 1 in the northwest corner of the northeast of the northwest of 32-18-2w, McPherson County, had 2000 feet of oil in the hole after topping pay at 2336 feet and drilling to 2359 feet August 25.

Chinberg 1 is an offset on the south of Reeves Brothers, Merriman and Shidel's Anderson 2, a gasser, which has been supplying the town of Salina with gas for some time.

Little River Line

Tulsa—Blackwell Oil & Gas Company is constructing a six-inch pipe line into the Little River pool. The company recently purchased acreage in this field from the Gladys Bell Oil Company, and its first well in this new territory south of the Greater Seminole area, is due for completion soon. The Empire Pipe Line Company's pump station in the Seminole field will be the northern terminus of the new line.

Receivers Will Operate American Properties

Wichita Falls, Texas.—Properties of the American Refining Company, which consist of producing leases, pipe lines, a large skimming and cracking plant and a chain of service and bulk stations in North Texas, will not be disposed of immediately, according to the receivers appointed August 22 in Federal District Court at Dallas. E. H. Eddleman, major oil company official, and J. C. Mytinger, capitalist and grain dealer, both of Wichita Falls, and John W. Hooser, banker and oil operator of Dallas, were appointed receivers for the company. The receivers are taking steps to operate the properties, and no effort will be made to dispose of same until oil property values return to near normal level.

Venezuelan Production

Maracaibo, Venezuela.— Production of crude in Venezuelan fields during the first seven months of 1926 totaled 33,177,920 barrels as compared with 19,985,235 barrels during the same period of 1926. Shipments of crude from this country during the first seven months of this year amounted to 26,338,386 barrels against 18,323,327 barrels during that period of 1926.

Put Four Lines Across River at Wood River

St. Louis.—Four 10-inch lines now being laid by Roxana Petroleum Corporation across the Mississippi River will, when completed, alleviate the situation of supply to the company's Wood River, Illinois, refinery, which since the spring high water menace has been operating on stored crude.

The present project increases the original capacity 100 per cent. The first of these lines is scheduled for completion during the first week in September, while the other three are due to be moving crude within six weeks following completion of the initial line.

August Production Higher Despite Less Drilling

(Continued from page 42)

trict only 16 wells were completed and the total initial output was only 19,810 barrels. Toward the end of the month a deepening campaign was getting under way, and 50 wells were headed for the deep pay. Several big completions from deeper sands stimulated drilling until practically all operators were included in the program.

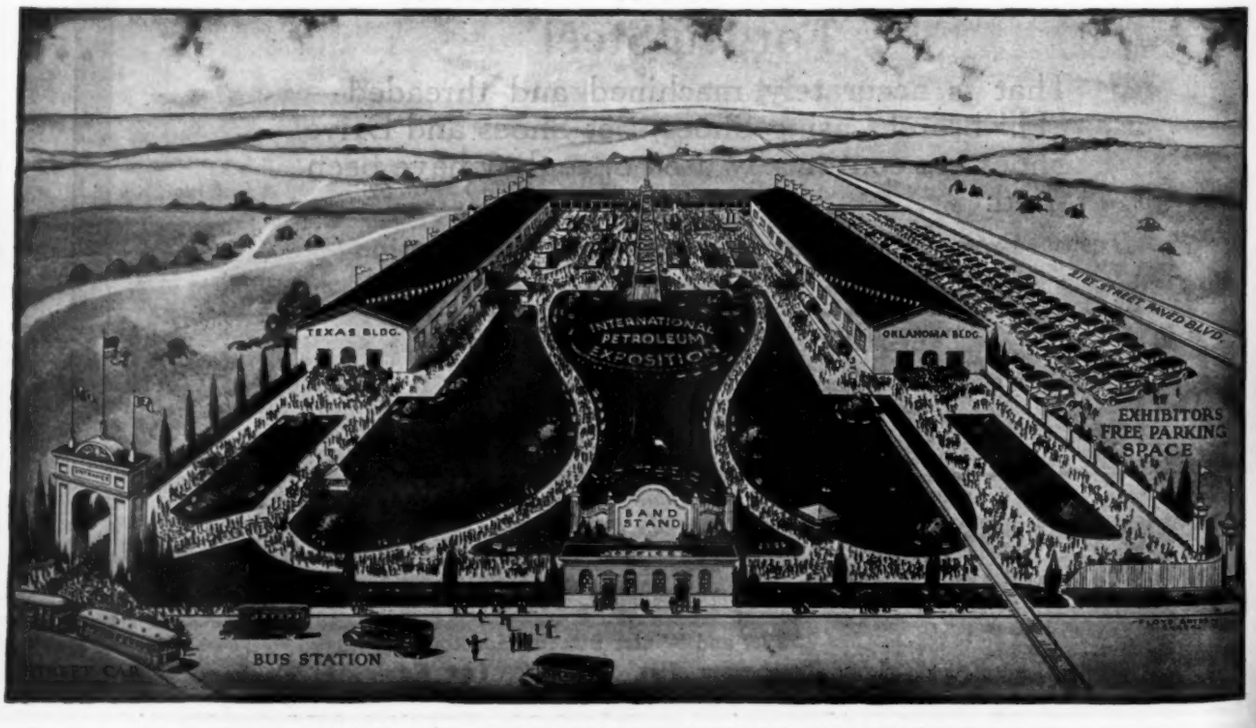
Other California fields failed to hold their own and contributed to the state slump.

Throughout Louisiana, Arkansas, and Eastern States development centered largely in old fields. In the Louisiana coastal district, especially the marsh country, work is still hampered by the flood and the old fields further north show no tendency toward any revival of work. North Louisiana reported 22 wildcat completions, but all of them were dry.

Most of the drilling in Arkansas was confined to the old Smackover field, Ouachita and Union Counties, but work for the entire State netted only 27 completions. Of this number 16 were producers with a total initial output of 2085 barrels.

The Salt Creek field in Wyoming, and the Kevin-Sunburst district in Montana were responsible for most of the work in Mountain States.

E. B. Wiggins, manufacturer of the Wiggins Rotary Under-Reamer, will motor through the country from Los Angeles to Tulsa, arriving there in time for the exposition. According to Mr. Wiggins, both he and the under-reamer will be in Booth No. 117 of the Oklahoma Building during the exposition.



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Gulf Coast Production at Peak During 1926-1927

(*Continued from page* 52)

tion on August 22, 1916, of a 10,000-barrel producer from 2030 feet by the American production Company. The production of the field climbed from 42,000 barrels, in 1916, to over 9,000,000 barrels in 1918, the peak year; since then it has gradually declined. In 1926 the production amounted to a little over 3,000,000 barrels.

West Columbia

Most of the podruction of West Columbia has come from sands ranging in depth from 2700 feet to 3200 feet, commercial production in the field dating from 1918. During the four years, 1919-1922, the field produced 42,897,000 barrels of crude, the greatest amount that has ever been produced in any Gulf Coast field in a like period. It was during these years that crude ros price to the highest point in the history of the oil industry, reaching $4.50 a barrel, and so West Columbia proved to be an unusually remunerative field.

Hull

The first development took place at Hull, Liberty County, back in the early days of Spindle Top, but all efforts to get production from the cap rock were unsuccessful. In fact, the feild has never had any shallow production. The first production came from the deep sand in July, 1918. Hull now ranks second in the Gulf Coast in daily production, the yield being around 15,000 barrels a day, or approximately one-half million barrels a month. Its production during the first seven months of 1927 amounted to approximately 4,000,000 barrels. During the past seven years the annual production at Hull has remained practically the same, and it still shows no signs of weakening, with new producers being brought in regularly. The slightly decreased activity that it is experiencing is due to the present unfavorable market conditions. There are oil men who predict that there will be a day when Hull will be producing more than any other field in the Gulf Coast.

Orange

Orange produced the bulk of its total during the past five years from deep sands, and at present ranks sixth among the Texas Gulf Coast fields in production, yielding at a rate that will make its total for this year amount to approximately 2,000,000 barrels. It is on the down grade, however, with most of the probable productive acreage drilled up.

Batson and Saratoga

Batson and Saratoga both belong to the colorful past, when Spindle Top and Sour Lake were in the glory of their cap rock production. Both fields came in shortly after the first Spindle Top boom, producing large quantities from shallow wells, and as the years have passed both have dwindled, with no deep production thus far to revive them, until they now produce only about one-half million barrels a year each.

South Liberty

South Liberty field, located in the Trinity River bottom, in Liberty County, was opened for production December 31, 1924, and reached its peak, 28,000 barrels a day, the following summer. It declined rapidly, until now the daily production is only about 2500 barrels. The Trinity flows across the dome, and on the other side of the river, on the west side of the dome, Humble Oil & Refining Company opened production early in 1926 in what is known as the South Dayton field. Activity at South Dayton has practically died, due to excessive salt water and weak gas pressure. In the A. P. I. figures on daily production, South Dayton's production is included with that of South Liberty.

Damon Mound

Damon Mound, in northwestern Brazoria County, began producing in commercial quantities in 1918. During the four years, beginning with 1920, the average yearly production was about 1,000,000 barrels. At present the daily average is the lowest of all the Texas Gulf Coast fields carried in the A. P. I. reports, being around 900 barrels.

Pierce Junction

The first success in oil development at Pierce Junction came when Gulf Production Company's Taylor 2 turned to an oil well after being completed as a gasser, in February, 1921. The field produced over 2,000,000 barrels during the two years following the discovery, and then sank into a position of little importance, due to the encroachment of salt water. But it was revived in September, 1925, by the opening of a new producing area on another side of the dome; and at present Pierce Junction ranks fifth in the Texas Gulf Coast in production. During the first six months of this year it produced 1,421,167 barrels, which is more than it has ever yielded before in a whole year.

Blue Ridge

Blue Ridge, located in eastern Fort Bend County, about 15 miles south of Houston, began producing commercially in April, 1919, when the Gulf Production Company's No. 2-C Blakeley came in flowing 1200 barrels a day by heads, at 2700 feet. The field was first tested in 1903 by the Rio Bravo Oil Company on account of its two surface mounds. Like Pierce Junction, it is at its best this year, with more production to its credit for the first half of 1927 than it ever produced before in an entire year, the production for the six months period being nearly one-half million barrels.

Big Creek

Big Creek, also in Fort Bend County, was opened for commercial production in May, 1922. It has had both shallow and deep production. With the Gulf Production Company and The Texas Company controlling most of the acreage, the field has never been on a boom. During the present year it is due to produce considerably more than a million barrels—as much, in fact, as it produced during the entire four years that constitute its previous history.

Boling

Boling field, in Wharton County, was opened for deep production with the completion of The Texas Company's Taylor 3, on December 14, 1925. This well made an initial of 10,000 barrels, but none so large have ever been brought in since then. The deep sands of Boling were deceiving, and the potentialities of the field were highly over-estimated, high prices being paid for acreage that has failed to pay off. A shallow cap rock field had been opened at Boling almost a year prior to the discovery of the deep field, however, and this shallow field, owned by the Weed-Gayle Oil Company, has proved to be highly remunerative, due to the small expense of drilling and other field operations, flowing wells of 200 or more barrels in many instances from around 420 feet.

Barbers Hill

Barbers Hill is on a mound-like elevation in the northwestern part of Chambers County. It is 11 miles north of Goose Creek and 26 miles northeast of Houston. Although drilling commenced there soon after the first Spindle Top discovery, there was no production until 1916, when Gulf and Humble, drilling jointly, completed a 40-barrel well at 1571 feet. But the first commercial production was obtained in 1918 with the completion by the United Petroleum Company of a 10-barrel well that produced for 15 months. Barbers Hill has been a disappointment to operators, approximately four-fifths of all the wells drilled there have been failures. During the nine years of its history it has produced little more than a million barrels. At present the production is only a few hundred barrels.

Dayton

The Dayton field, Liberty County, now usually referred to as North Dayton, was opened with the completion of

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a 5000-barrel well in September, 1905, by the Paraffine Oil Company, and has produced from the cap rock from then until now, although at the present yield is only about 75 barrels from 10 or 12 wells. Deep production was opened in the field, however, on July 15, 1927, by the completion of Harrison Oil Company's Quintette 1, for an initial folw of 400 barrels. This well is still flowing about 250 barrels daily. Location has been made for Harrison's No. 2. Although they have not begun drilling in the field, most of the major companies operating in this section hold acreage there.

Markham

Practically all of the production which is listed in the accompanying table under "Matagorda County" has come from the Markham field, which was discovered June 6, 1908, with the completion of Hardy Oil Company's Hudson 1 for 3600 barrels at 1734 feet. The best year of the field was 1911, when more than one-half million barrels were produced.

South Louisiana

As in the coastal region of Texas, the fields of the Louisiana Gulf Coast section which have the greatest total recovery to their credit are old fields. Jennings, otherwise known as Evangeline, still heads the list, although it has been many years since it was in the big producing class. Its total production from the beginning through July of this year has amounted to 39,106,815 barrels. There are six fields in the Texas section of the Gulf Coast which have produced more than this amount.

Following Jennings in importance for total production are Vinton, with 28,731,142 barrels to its credit up to August 1; Edgerly, with 6,716,635 barrels, and Lockport, with 3,124,537 barrels.

The total recorded production for all fields of the Louisiana Gulf Coast from their beginning, is 79,032,411 barrels—approximately 20,000,000 barrels less than the production of Humble alone, and slightly more than the yield of Spindle Top.

Jennings

Jennings, Acadia Parish, was on of the first fields to follow Spindle Top, coming in during the same year, 1901. Its gushers, which compared favorably with those world-famous oil spouts of Spindle Top; but the production was from a sand, rather than cap rock, and so to Jennings belongs the distinction of being the first field in the Gulf Coast to produce from the deep sand. In order to produce the oil, however, it was necessary to find a means of dealing with loose sand, and Jennings rose to the occasion by devising the screen—one of the most important of oil field inventions. In 1908 this field was still producing approximately 5,000,000 barrels a year, and in 1912 about 1,000,000 barrels. But since the latter year the production has been such as to make the field a minor factor.

Lockport

Lockport, which was opened for production in September, 1924, is now leading in daily production in the Louisiana Gulf Coast. Indications of a salt dome have never been found in this field; it is producing from nine different sands. During the first half of the present year it produced nearly 1,000,000 barrels.

Since its discovery this field has produced over 3,000,000 barrels, all of which has come from 31 wells owned by Vacuum Oil Company, the only operator in the field. Vacuum has drilled only 44 wells at Lockport, the producers constituting 70 per cent of all the wells drilled.

Vinton

Although it is an old field, having been discovered in 1910, Vinton, Calcasieu Parish, is still producing at the rate of about 2,000,000 barrels a year. Although it is not giving up quite as much oil as Lockport at the present time, its daily average is second highest among the South Louisiana fields, and its total during the present year does not fall far short of that of Lockport. Last year it produced a million barrels more than Lockport, with practically all of South Louisiana's production coming from the two fields. Vinton is a salt dome, and has been a remarkably consistent producer, with very little fluctuation in its production from year to year throughout the whole 18 years of its history. Its production in 1926 was approximately 2,500,000 barrels, practically the same as that in 1911.

Edgerly

Edgerly, also located in Calcasieu Parish, which began producing commercially in 1914, and which ranks third among South Louisiana fields in gross production, is strictly a sand field. Although it gradually declined in production after the first two or three years of its life, it is at present taking a spurt. Within the past year the field has been extended to new sands and it is now producing more than it has done for a decade.

Sweet Lake, a recently opened field, is also characterized by the absence of salt dome indications. It is the deepest field in the South, one well there being 5867 feet deep. It is controlled entirely by the Pure Oil Company.

Stark's dome is among the most promising of the new fields of Southern Louisiana. Two wells have been completed there. It was discovered by means of the seismograph in 1925, and was opened for production about a year later. It is controlled entirely by the Gulf Refining Company and the Standard Oil Company of Louisiana.

Geologists To Have Iowa-Missouri Field Conference

Tulsa.—Members of the Tulsa Geological Society last week received an invitation from the Kansas Geological Society to attend the Missouri-Iowa field conference September 5-10. The invitation came to A. L. Beekly, chief geologist for the Mid-Continent Petroleum Corporation and president of the Tulsa society, from L. W. Kesler, president of the Kansas group and geologist for Sinclair at Wichita.

The primary purpose of the conference is to study the outcrops of Paleozoic formations in eastern Missouri and Iowa, especially the Ordovician in its correlation with these formations of Kansas and Oklahoma.

The party is scheduled to meet on the morning of September 5 at Columbia, Missouri, and will go as far as Decorah, Iowa. Dr. E. B. Branson, head of the department of geology of the University of Missouri, will lead the party through Missouri, while Dr. George F. Kay, director of the Iowa state geological survey, will lead the trip through that State.

The party is expected to be composed of about 40 geologists from Kansas and Oklahoma. This is the fifth annual trip of this kind to be made by the Kansas society.

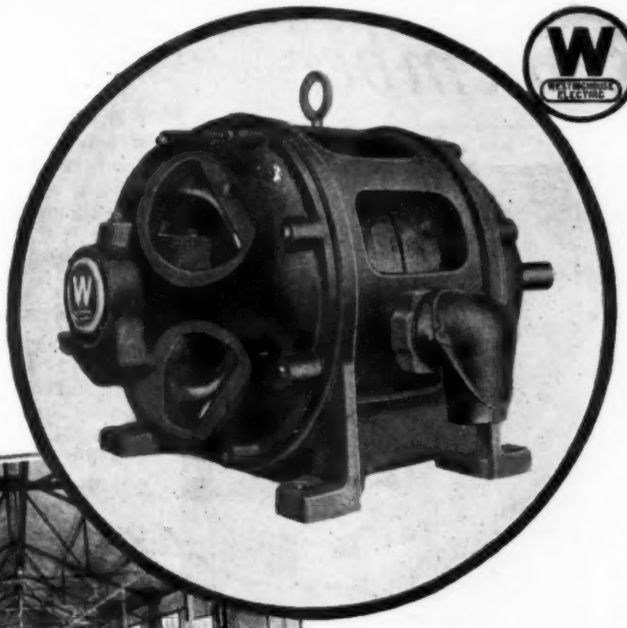
Wildcatting in Western Washington Active

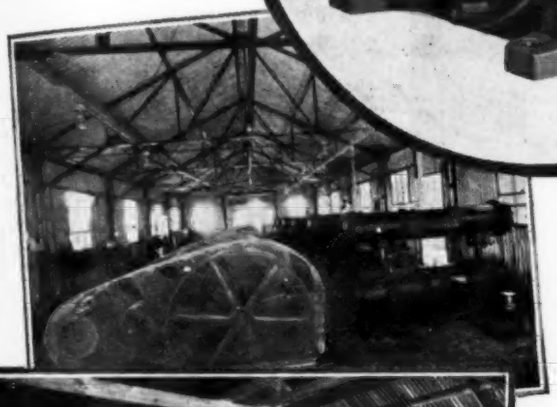
Seattle, Wash.—Wildcatting in the western part of Washington has recently been stimulated to a point of peak activity, reports from the various sections of activity show.

The Sound Oil Company, drilling a deep test in Snohomish County for many months, has shot the hole at approximately 6000 feet and plans to make a new location within a radius of two miles for a new wildcat.

The Mottman interests, drilling near the Columbia River, Pacific County, are reported getting enough gas from a 1375 foot sand to carry on drilling with this fuel. The Chehalis test, located west of Centralia, Lewis County, has been lost at about 2800 feet, and a new location has been made in the immediate vicinity, which will be drilled for probable production from a 1500 foot sand. The Land Leasehold Company is planning operations in Whatcom County to drill on the Goshen structure.

New activity is being planned in Kitsap County, the Chico interests having announced new locations after a protracted shutdown. The New York Oil Company and B. A. Garber have recently announced a continuance of activity in Grays Harbor County, near Montesand, following the clearance of titles to lands there.





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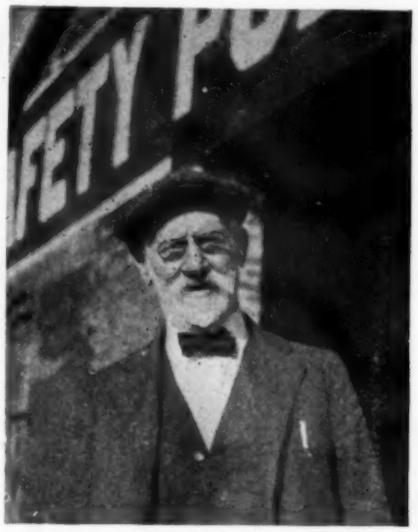
Say you saw it in The OIL WEEKLY

I Can Remember

WITH the spectacular performance of the Seminole field, in Oklahoma, fresh in one's mind, it is difficult to imagine that 40,000 barrels production in the early days of the oil industry should have flooded the crude market and been the means of forcing down the price per barrel to 65 cents in Pennsylvania.

However, just this very thing happened in the early seventies, and the remembrance of those hectic days around Rouseville and Titusville and Oil City is recalled vividly today by Thomas G. Laney of Independence, Kansas, who came to Western Pennsylvania in that period and took his initial plunge in the oil business.

Mr. Laney now is the active head of the Safety Pulling Machine Company at Independence, and though 78 years old, still is sturdy and strong and his memory of the old days is as fresh as ever. Mr. Laney often visits in Tulsa and Houston and is well known not only in the Mid-Continent field but in other sections as well.

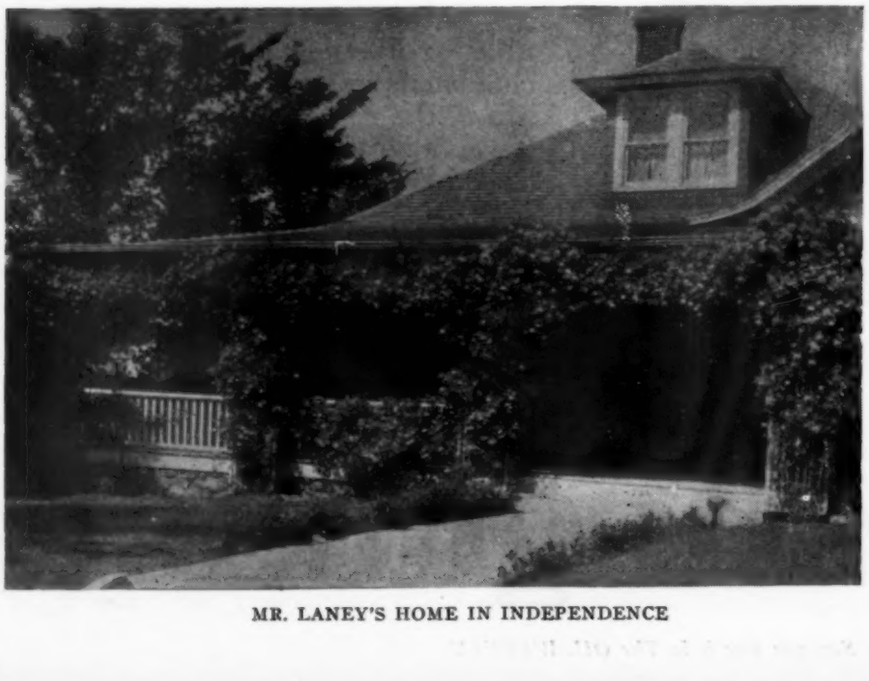


THOS. G. LANEY STANDING IN FRONT OF HIS OFFICE IN INDEPENDENCE

Born at Pembroch Dock near Bristol, England, Mr. Laney lived for a time in Cardiff, Wales, and has often visited the old castle in the vicinity where Robert, Duke of Normandy, was held captive in the early days of English history. Coming to the United States with his parents, Mr. Laney celebrated his twenty-first birthday aboard ship and landed in New York in 1870. From New York he went to Rouseville, in Pennsylvania, and there began his connection with the oil industry that has continued without interruption to this day.

"Rouseville in those days was quite active, but a bit rough," Mr. Laney recalled. "With a population of about 10,000 or more people, I have seen barrels of crude oil being hauled down Main street on a wagon with only the bed itself showing, giving the appearance of the load being skidded along on a sea of mud, in such wretched condition were the streets, if you could call them such. Teams would bog up right in front of the post office, and time and time again wagons would have to be unloaded in order to pull out. The spring rains were accountable for these conditions."

His residence in Rouseville extended over a period of two years, during which time he was advanced to a pumper with a daily stipend of $2.50. Later on he rose to the position of tool dresser and commanded a daily pay of $4. "This was the time when benzine or gasoline was a drug on the market, and 62-63 gravity could be delivered in Boston for three and one-half cents a gallon," Mr. Laney recounted. "The largest refinery was at Plummer, with another located at Mechanicville. These plants purchased crude oil and afforded a market for production in the vicinity, and also at times obtained their supply from more distant points. Crude sold for varying prices, depending on circumstances of sale and its accessibility for river transportation. Four dollars a barrel was obtained for oil of good quality."



MR. LANEY'S HOME IN INDEPENDENCE

Remembers Old Timers

Mr. Laney recalled many men engaged in the oil business in those early days who have since become outstanding leaders in the industry. These included Theodore Barnsdall, Jim Guffey, J. W. Van Dyke and others. The latter purchased the property on which Mr. Laney was working as a tool dresser. Mr. Van Dyke now is chairman of the board of the Atlantic Refining Company in Philadelphia.

An experience of Mr. Laney that was quite tragic at the time but now appears humorous was the production and subsequent loss of his first barrel of crude oil. "There was a well on an old property near Mechanicville that had quit producing," Mr. Laney declared. "I obtained permission to work the well over in the hope that production could be revived. When the gas gave out I cut wood to pump the well, and after three days hard work, succeeded in obtaining about 20 barrels of water and enough crude to make a barrel.

"The lease was along the banks of the river and a wagon road followed the river on the same side, leading to Mechanicville. I had arranged to have a wagon pick up my barrel of oil and carry it there, and I was to get $4 for the oil. After much trouble I succeeded in rigging up a sucker rod line from top of the bank to the lower road, and with a sling roped the barrel onto this line and started it skidding down. The journey downward was a bit rough, and by the time the barrel had well cleared the top bank its course was none too steady. In fact, it began to twist about and swing first to this side and that, until near the bottom the sling broke and my barrel of oil trickled onto the road and then down into the river. Such was my first experience in producing oil on my own account."

Mr. Laney came to Oklahoma from Ohio in 1906 and obtained leases on Indian lands near Chelsea. An interesting provision of the government regulations in those days is recalled by Mr. Laney, who explained that an individual or concern must have $10,000 in cash before a lease would be executed in his favor. He, with his partner, W. W. Curtin, whom he met back in Pennsylvania and with whom he was associated in Ohio, both proved to the satisfaction of the Indian agency that their credit was good at the bank for that amount and operations were begun. Their venture was successful from the start and a total of 79 wells were drilled, all producers with no dry holes. This lease was near Alluwe, between Nowata and Chelsea, in Rogers and Nowata Counties.

Mr. Laney's partnership with W. W.

Curtin began back in Ohio. In this connection he recalled his first automobile which was owned when he lived in Lima, Ohio. "The boys of the town would toss rocks or small stones at us when we chugged forth in the car," Mr. Laney said in recalling this adventure. "However, this did not dismay me in the least, for that same year we took a long trip of more than 2500 miles in the car and I have been fortunate enough to own one ever since."

It was during the first International Petroleum Exposition in Tulsa that Mr. Laney had the pleasure of renewing acquaintances with one of his former employes in the old days. This man and Mr. Laney met by chance at the exposition and recounted former experiences to the enjoyment of both. When it could be conveniently arranged, Mr. Laney has attended the expositions in Tulsa and has always taken a deep interest in the scientific and technical exhibits.

Mr. Laney's connection with the Safety Pulling Machine Company began when he and Mr. Curtin were engaged in the oil business at Elgin, Kansas. The safety pulling machine was invented by Owen A. Thompson and Chas. H. Overly, and the enterprise was first started in a building alongside the Missouri Pacific railroad at Independence. When Mr. Laney acquired an interest in the business and became president, the company's present factory near the Santa Fe station in Independence was acquired. The growth of the company's business has been satisfactory and machines now are sent, not only to domestic oil fields, but to foreign countries as well.

Mr. Laney has two sons living. L. K. Laney is with The Texas Company, with headquarters at Houston, and T. G. Laney is connected with the sales department of the Smith Separator Company, with offices in Tulsa.

Barber County Wildcats

Wichita, Kan.—Barbara Oil Company has announced a location for its Carter 1 wildcat to be drilled in 2-33-13, Barber County, one mile west of the company's gasser, which is making 5,000,000 cubic feet of gas after completion recently from 4447 feet. The producer is located in 13-33-13.

The company was underreaming August 24 at slightly below 2400 feet in the Boggs 1, located in 19-33-12, a mile southwest of the gasser.

Skelly Oil Company was rigging up early last week on Winter 1, a wildcat near Isabel, in the northern part of Barber County, 17-31-12.

Deepen Producer

Tulsa—Magnolia Petroleum Company increased the production of its Mattie Zachary 1, in the northeast of the southeast of 21-2s-3w, in the Fox field, Carter County, from 20 to 200 barrels by deepening the hole to a broken oil sand at 2181-2200 feet from an old pay sand more than 100 feet above.

READER COMMENT

THE State of Colorado recently put into effect House Bill No. 345, a bill which is intended to not only conserve natural gas, but to prevent its waste.

"This is certainly an act of wisdom on the part of the State legislature and the governor of Colorado," says a reader of *The Oil Weekly*, who further writes us that:

"In other states the lack of such legislation has, in the past resulted in both accidental and wilful wastage. This was due partly to the careless drilling of wells with attendant leakage, and also to the fact that some operators wilfully allowed gas to escape and become lost in order to facilitate production of oil.

"It must be stated that the careful operator (and the term operator includes nearly all the larger companies), are most careful in conserving the gas, both as to wastage above ground and underground. It has been clearly demonstrated, by the United States Bureau of Mines as well as by many independent operators, that underground wastage can be just as efficiently controlled as wastage on the surface. By properly sealing off the different strata with mud fluid and seeing that the casing is properly screwed together and cemented, there is no occasion for underground leaks.

"It is becoming more and more recognized that the presence of gas in oil is a very important factor in obtaining a higher rate of production from oil wells. This subject has been carefully studied in different parts of the United States and it is becoming common practice for the operators to use natural gas, which has come from the well, over again in an adjoining well in order to aerate or gasify the oil and thus increase production. Results from this application of gas are indeed surprising in production of old wells where the gas has become very low. Some of these old wells are producing many times their original rate of oil through the application of natural gas in this way.

"The high pressures and high flows of natural gas encountered in new fields are excessively difficult to control. The early experiences of operators in high pressure fields in California, Texas, Louisiana, Arkansas, Oklahoma and other States have been disastrous in many cases. Some of these natural gas wells have gotten out of control and gone 'wild,' as termed by the operators. In such cases the gas cuts a channel back of the casing and in a few hours, or a few days, time a crater or cavity is formed which gradually enlarges as time goes on. The famous Murphy crater, in South Arkansas, started through the operators striking a heavy gas flow at 2200 feet. Upon cratering, the well became uncontrollable and the crater gradually extended in area until it was over 600 feet across and about 100 feet deep. There are numerous cases of this kind on record, but within the last few years, through a more careful study of mud fluid conditions, danger from these craters have been entirely overcome. While it is true that there have been a few wild gassers in different parts of the country within the past three or four years, these have either been controlled before they cratered, or else the proper mud fluid has been applied and the well reduced to control.

"In weighing up samples of mud in different oil fields, it was found that the ordinary mud, such as is made from the strata penetrated, was not heavy enough in specific gravity to give the necessary weight in fluid column to offset the gas pressure. The gas pressures in most fields are about equal to hydrostatic pressure, that is, water exerts a pressure of .434 pounds per foot. This would mean a pressure of around 800 pounds at 2000 feet and one might expect to find gas pressure about equal to this at this depth. In wells 3000 feet or over, the pressures mount up to dangerous proportions, and a great deal of care must be exercised by the operator in the effective control of these pressures, both before and after bringing in the well. Manufacturers of casing, valves and other equipment are fully aware of these high pressures, and during the last few years this equipment has been gradually improved to such an extent that accidents of any sort seldom occur.

"It is also to be noted that the State of Colorado has made provisions for the appointment of three men who shall have had at least five years experience in the producing of oil or gas. This means that the act which was recently put into effect will be capably administered by men of experience and not by politicians. There is no doubt but that such a commission of capable men, with the authority of this act behind them, can do everything necessary to fully protect the natural gas resources of the State of Colorado."

Osage Producer

Bartlesville—Peters Petroleum Company No. 2, in 26-25-9, three miles southeast of Pawhuska, in the Osage, has topped the Bartlesville sand at 2115 feet and penetrated it nine feet to produce 240 barrels of 34 gravity crude. It is an offset to No. 1, which made a dry hole at 2500 feet.

Grady County Test

Tulsa—Carter Oil Company, early last week, topped a sandy shale at 3467 feet in the M. Kerns 3, Knox field, Grady County, and found a slight showing of oil below any known productive level in the field. The well was reported drilling August 23 at 3497 feet. M. Kerns 3 is located in the northwest corner of the southeast of 21-3n-5w.

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California Production Maintained by Deeper Wells

(Continued from page 44)

nine fields are largely deep fields and also high gravity fields, merely goes to prove the general rule of increasing gravity with depth. This rule is found to be fairly consistently true, at least in the Los Angeles basin; some exceptions are found in other districts. The following table exemplifies this:

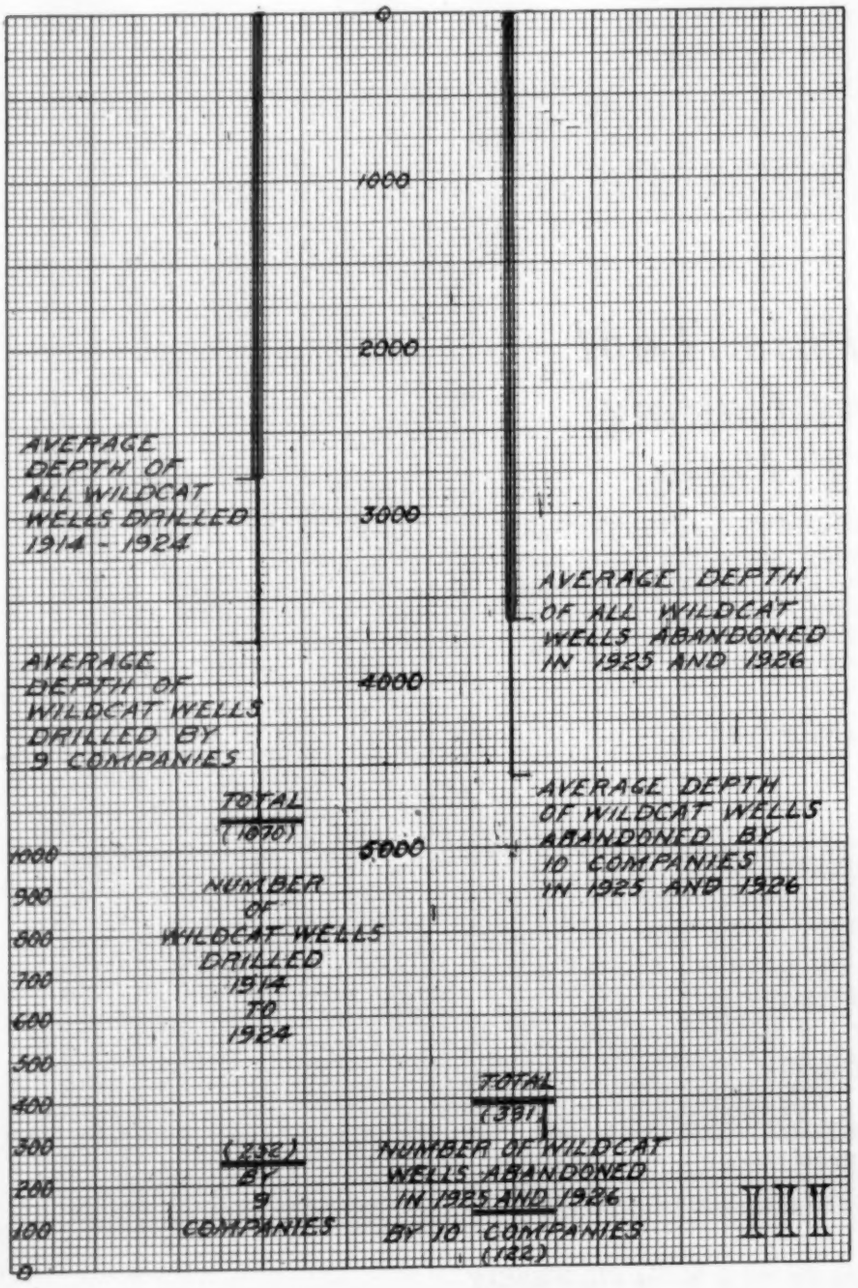
Field	Depth	Gravity	Increase of Gravity with depth
Los Angeles	500-1200	12-19	1° for every 100 ft.
Santa Fe Springs			
Foix zone	3900	26	
Bell zone	4100	30	1° for every 50 ft.
Meyer zone	4500	35	1° for every 80 ft.
Inglewood	1200-3000	16-29	1° for every 73 ft.
Seal Beach			
Bixby zone	4400	23	
Selover zone	4620	26	1° for every 73 ft.

Ventura Avenue is the outstanding field where reverse conditions prevail. At 6000 feet, 29 gravity oil is being produced, while the gravity of the oil in the shallow zone of the same field ran as high as 56 at 2000 feet.

Of the nine fields being particularly discussed, the ones which are most important as regards deeper production are Long Beach, Huntington Beach, Dominguez, Inglewood, Ventura Avenue, Seal Beach. Of the older fields, the following also hold deep possibilities: Coyote, Richfield, Brea-Olinda, Montebello.

Long Beach

Deeper drilling on the southwest edge of the field was stimulated by the completion in 1926 of Richfield Oil Company's Hass 8, for 2400 barrels per day from 5317 feet.



Huntington Beach

During 1926, the "Barley Patch" district to the northwest was developed by the Standard Oil Company and the townlot area adjoining was opened to drilling; the deep zone has been penetrated to about 4400 feet.

Dominguez

The few companies interested in this field are operating under an agreement to limit the depth of penetration to 400 feet of zone, and the possibilities below 4300 feet in the central part of the field remain entirely untested.

Inglewood

During 1926, Associated Oil Company penetrated 400 feet of formation below the 1300 feet, from which the best of the other wells have been producing; Vickers 2 flowed at the rate of 1700 barrels of 23.8 gravity oil. The well was shut in, and the operators in this field wisely look upon the natural reservoir as the best place to store the oil until a greater demand arises.

Ventura Avenue

Wells in this field are now producing from the extraordinary depth of 6800 feet without finding bottom water; the wells present engineering difficulties of considerable magnitude, but this field holds tremendous possibilities for deep production.

Seal Beach

Production recently obtained from below 5000 feet in the Alamitos Heights area, represents a zone below the Selover, which is the lower of the two principal zones of production at Seal Beach. This production will be from below 4700 feet, and if productive over the entire area will assist in maintaining a long and productive life for the field.

Brea-Olinda

The deepest well in the world, Chanslor-Canfield Midway Oil Company's Olinda 96, during its progress to 8046 feet cored several oil sands below 600 feet and is plugging back to test these out. Other wells in this field are developing the deep zone below 5000 feet.

Montebello

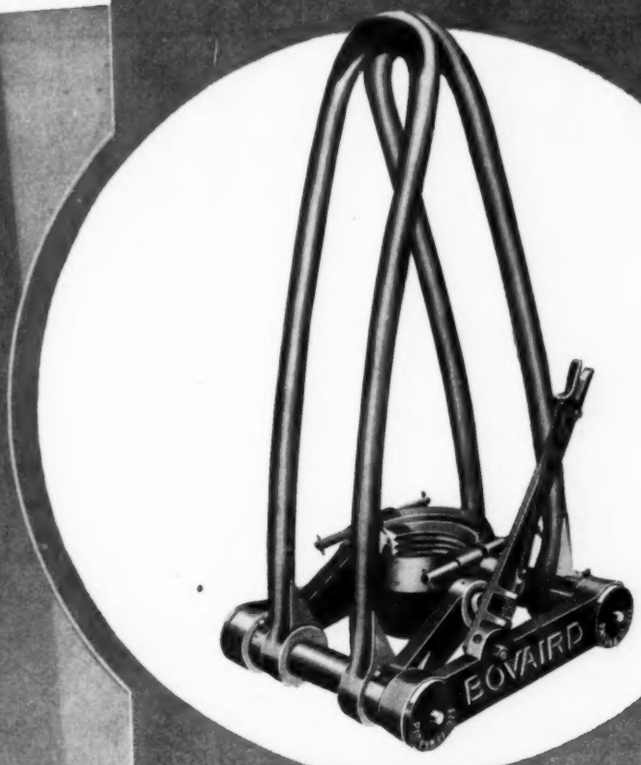
There is slight activity in deepening operations to the second zone on the south flank and to the third zone on the west flank; the wells in the third zone are about 4400 feet deep.

Richfield

This is the most active of the old fields; deepening of wells in the east central part of the field has resulted in 1000 barrel wells from 4600 feet and the daily production is 7000 barrels per day greater than one year ago.

Coyote

Wells have been deepened from 4300 to 4700 feet and have found a deeper zone; this field is operated entirely by the Standard Oil Company and will be permitted to register the natural decline until more favorable conditions arise for the development of the deeper production.



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Summary of Field Operations for August, 1927

EASTERN STATES

	Completions	Producers	Gas Wells	Failures	Initial Prod.
Pennsylvania	207	175	22	10	737
West Virginia	81	26	43	12	347
Kentucky	116	77	2	37	3,760
Tennessee	10	5	..	5	196
Ohio	134	66	40	28	1,397
Indiana	25	11	1	13	868
Illinois	17	6	..	11	234
Michigan	22	20	..	2	303
New York	51	48	1	2	201
Totals	663	434	109	120	8,043

PENNSYLVANIA

Bradford	151	149	1	1	668
Greene	12	..	12	..	....
Venango	14	12	2	..	29
Clairion	11	4	4	3	9
Beaver	1	1	..	..	1
Butler	11	5	2	4	12
Center-Middle	6	4	..	2	18
Washington	1	..	1	..	....
Totals	207	175	22	10	737

NEW YORK

Allegany	51	48	1	2	201

WEST VIRGINIA

Calhoun	13	4	9	..	13
Ritchie	10	5	3	2	185
Wetzel	7	2	4	1	22
Pleasants	5	4	..	1	75
Roane	5	2	2	1	7
Monongalia	3	1	2	..	2
Gilmer	5	1	3	1	1
Doddridge	4	..	3	1	....
Marion	2	1	1	..	5
Marshall	2	2	..	..	12
Clay	4	3	..	1	23
Boone	6	..	6	..	....
Lincoln	4	..	4	..	....
Cabell	2	..	2	..	....
Tyler	1	..	1	..	....
Putnam	3	..	3	..	....
Kanawha	1	..	..	1	....
Wirt	1	..	..	1	....
Wood	2	..	..	2	....
Wayne	1	1	..	..	2
Totals	81	26	43	12	347

KENTUCKY

Barren	34	24	..	10	337
Ohio	36	24	1	11	2,473
Warren	8	3	..	5	81
Floyd	2	1	1	..	10
Daviess	4	4	..	..	95
Allen	4	3	..	1	660
Lawrence-Johnson	1	1	..	..	7
Johnson-Magoffin	4	4	..	..	19
Estill	7	4	..	3	9
Wayne	4	2	..	2	11
Powell	1	1	..	..	3
Elliott	1	..	..	1	....
McCreary	2	1	..	1	10
Simpson	1	1	..	..	7
Cumberland-Monroe	7	4	..	3	38
Totals	116	77	2	37	3,760

TENNESSEE

Jackson	4	2	..	2	150
Clay	6	3	..	3	46
Totals	10	5	..	5	196

INDIANA

Gibson	8	5	..	3	545
Vigo	3	1	..	2	125
Pike	3	..	..	3	....
Adams	1	1	..	..	5
Knox	1	1	..	..	25
Jay	2	1	..	1	3
Wells	1	..	..	1	....
Daviess	4	2	..	2	165
Shelby	1	..	1	..	....
Fountain	1	..	..	1	....
Totals	25	11	1	13	868

OHIO

	Completions	Producers	Gas Wells	Failures	Initial Prod.
Central Ohio—					
Ashland	10	..	6	4	....
Holmes	9	6	2	1	292
Licking	13	11	1	1	183
Hocking	10	5	3	2	89
Perry	11	4	3	4	251
Coshocton	4	1	3	..	75
Cuyahoga	5	..	5	..	....
Guernsey	4	2	2	..	130
Medina	10	3	4	3	5
Athens	5	2	1	2	8
Meigs	6	4	1	1	32
Knox	5	1	2	2	5
Lorain	2	..	2	..	....
Summit	1	..	1	..	....
Muskingum	2	1	..	1	5
Wayne	1	..	1	..	....
Fairfield	1	..	..	1	....
Northwestern Ohio—					
Allen	2	2	..	..	55
Auglaize	4	4	..	..	98
Hardin	1	1	..	..	18
Wyandot	1	1	..	..	15
Mercer	1	1	..	..	15
Lucas	1	1	..	..	12
Ottawa	2	1	1	..	10
Shelby	1	1	..	..	8
Sandusky	2	2	..	..	40
Seneca	1	1	..	..	2
Darke	1	..	..	1	....
Pauling	1	..	1	..	....
Southeastern Ohio—					
Washington	9	6	..	3	27
Monroe	2	2	..	..	4
Noble	2	1	..	1	5
Morgan	1	..	..	1	....
Jefferson	2	2	..	..	13
Belmont	1	..	1	..	....
Totals	134	66	40	28	1,397

ILLINOIS

Edgar	1	..	..	1	....
Cumberland	2	1	..	1	2
Wabash	10	2	..	8	115
Lawrence	2	2	..	..	100
Morgan	1	1	..	..	17
Clark	1	..	..	1	....
Totals	17	6	..	11	234

MICHIGAN

Saginaw	21	19	..	2	285
Shiawasse	1	1	..	..	18
Totals	22	20	..	2	303

MOUNTAIN STATES

WYOMING

Garland Anticline	1	..	1	..	....
La Barge	2	2	..	..	690
Lance Creek	1	1	..	..	25
Salt Creek	6	5	..	1	1,436
Totals	10	8	1	1	2,151

MONTANA

Big Lake Field	1	1	..	..	95
Kevin-Sunburst	18	10	6	2	2,880
Totals	19	11	6	2	2,975

NEW MEXICO

McKinley County	1	1	..	..	50
San Juan County	1	1	..	..	10
Totals	2	2	..	..	60

MOUNTAIN STATES RECAPITULATION

Montana	19	11	6	2	2,975
New Mexico	2	2	..	..	60
Wyoming	10	8	1	1	2,151
Totals	31	21	7	3	5,186

OKLAHOMA

	Completions	Producers	Gas Wells	Failures	Initial Prod.
Caddo	3	3	..	..	93
Carter	11	8	1	2	1,640
Comanche	1	..	..	1	....
Creek	37	20	5	12	4,445
Garvin	2	2	..	..	140
Grady	13	4	5	4	325
Hughes	2	..	1	1	....
Jefferson	3	1	..	2	50
Kay	7	2	3	2	373
Lincoln	1	..	..	1	....
Muskogee	11	3	1	7	65
Okfuskee	7	2	2	3	2,255
Oklahoma	2	..	..	2	....
Okmulgee	14	6	3	5	206
Osage	15	7	5	3	2,920
Pawnee	6	2	1	3	23
Pittsburg	1	..	1	..	....
Pontotoc	6	3	..	3	570
Pottowatomie	27	25	1	1	79,699
Seminole	130	82	5	43	130,729
Sequoyah	1	..	1	..	....
Stephens	13	8	1	4	2,410
Tulsa	8	2	1	5	40
Wagoner	1	..	..	1	....
Totals	322	180	37	105	226,033

OKLAHOMA PRODUCTION SUMMARY

North Braman	104,625
South Braman	83,700
Blackwell	117,025
Hubbard	160,022
Thomas	143,375
Tonkawa	617,272
Garber	353,400
Burbank	1,209,000
Osage (outside Burbank)	974,950
Watchorn	56,172
Cushing	664,950
Yale Jennings	313,100
Davenport	91,822
Bristow Slick	792,825
North Okmulgee	513,825
Lyons Deaner	159,247
Stroud	38,750
Cromwell	384,400
Papoose	199,547
Wewoka	582,800
Seminole	9,300,775
Earlsboro	5,900,075
Duncan District	217,000
Graham	216,225
Fox	61,225
Healdton	461,497
Hewitt	305,722
Scholem Alchem	522,350
Others	2,108,372
Total	26,654,048

KANSAS

Butler	15	10	..	5	797
Chase	2	..	2	..	....
Chataqua	2	..	1	1	....
Coffey	4	..	..	4	....
Cowley	5	1	..	4	120
Elk	5	5	..	..	365
Ellis	1	..	..	1	....
Gerry	1	..	..	1	....
Greenwood	12	6	..	6	1,375
Lyon	2	1	..	1	40
Marion	3	..	..	3	....
Morris	1	..	1	..	....
Osage	1	..	..	1	....
Reno	1	..	..	1	....
Rowlins	1	..	..	1	....
Seward	1	..	..	1	....
Sumner	4	2	2	..	715
Woodson	2	..	..	2	....
Total	63	25	6	32	3,412

KANSAS PRODUCTION SUMMARY

Greenwood County	1,062,525
Florence-Covert	49,972
Peabody-Ebling	118,947
Eldorado-Towanda	430,125
Augusta-Fox Bush	134,850
Rainbow Bend	69,347
Russell	77,097
Churchill	461,497
Others	866,822
Totals	3,271,182

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The Opening of Two New Stores in Oklahoma

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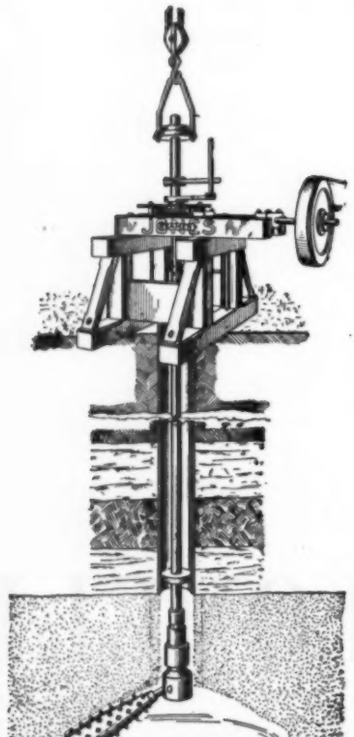

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TEXAS

RECAPITULATION

Field—	Completions	Producers	Gas Wells	Failures	Initial Prod.	Monthly Prod.
N. Texas	160	76	14	70	10,761	6,371,070
Central-West Texas	183	105	6	72	114,533	6,477,180
East-Central Texas	2	2	..	..	....	1,022.955
Southwest Texas	12	7	3	2	366	988,190
East Texas	11	1	6	4	52	.....
Gulf Coast	37	23	1	13	15,391	3,832,110
Totals	405	214	30	161	141,103	18,591,505

NORTH TEXAS

Archer Co.	23	8	..	15	630	856,005
Baylor Co.	..	..	..	..	....	3,100
Burkburnett	2	1	..	1	4	420,425
Carson Co.	4	4	..	..	1,480	308,855
Clay Co.	3	..	..	3	....	19,745
Cooke Co.	27	18	3	6	2,790*	506,600
Electra	3	2	..	1	32	398,725
Gray Co.	10	7	1	2	2,860†	313,470
Hutchinson	16	10	6	..	1,635‖	2,587,725
Jack Co.	11	6	..	5	280	20,555
K-M-A and Iowa Park	14	6	..	8	135	81,005
Montague Co	10	6	1	3	135§	.....
South Vernon District	6	3	..	3	110	404,955
Throckmorton	3	2	..	1	140	55,425
Wheeler Co.	3	..	2	1	....‡	63,955
Young Co.	19	3	..	16	530	327,050
Others	..	..	..	..	....	3,475
Wildcats	6	..	1	5	....¶	.....
Totals	160	76	14	70	10,761	6,371,070

*Includes 8,250 ft gas and Montague County production.
†Includes 5,000,000 feet gas.
‖Includes 177,000,000 feet gas.
§Includes 10,500,000 feet gas.
‡Includes 124,000,000 feet gas.
¶Includes 12,000,000 feet gas.

CENTRAL AND WEST TEXAS

Big Lake	8	8	..	..	2,205	780,825
Brown Co.	45	27	1	17	7,803*	773,450
Callahan Co.	15	6	..	9	770	108,905
Coleman Co.	6	..	3	3	....†	31,775
Crane Co.	31	31	..	..	40,580‖	3,354,200
Crockett Co.	1	1	..	..	45	40,705
Eastland Co.	22	11	1	10	4,635§	259,625
Howard Co.	3	3	..	..	75	99,605
Jones Co.	..	..	..	..	....	58,900
Mitchell Co.	2	2	..	..	275	121,305
Palo Pinto	1	..	..	1	....	26,350
Pecos Co.	6	6	..	..	49,400	191,830
Shackelford	13	3	1	9	75‡	232,130
Stephens Co.	3	..	..	3	....	275,495
Upton Co.	6	6	..	..	3,670	.....
Winkler Co.	1	1	..	..	5,000	62,405
Wildcats	20	..	..	20	....	.....
Others	..	..	..	..	....	59,675
Totals	183	105	6	72	114,533	6,477,180

*Includes 7,500,000 ft. gas.
†Includes 13,000,000 ft. gas.
§Includes 21,500,000 ft. gas.
‡Includes 250,000 ft. gas.
‖Includes Upton County production.

EAST CENTRAL TEXAS

Corsicana-Powell	..	..	..	..	....	480,500
Currie	..	..	..	..	....	15,500
Mexia	2	2	..	..	30	301,475
Nigger Creek	..	..	..	..	....	96,800
Richland	..	..	..	..	....	32,955
Wortham	..	..	..	..	....	95,725
Wildcats	..	..	..	..	....	.....
Totals	2	2	..	..	....	1,022,955

EAST TEXAS

Harrison Co.	6	..	6	..	....	.....
Marion Co.	1	1	..	..	52	.....
Wildcats	4	..	..	4	....	.....
Totals	11	1	6	4	52	.....

SOUTHWEST TEXAS

Dale	1	1	..	..	250	.....
Duval County	..	..	..	..	....	1,550
¶Laredo Dist.	3	2	1	..	45	347,605
Luling	2	2	..	..	65	527,405
Lytton Spgs.	1	1	..	..	2	64,725
Somerset	1	1	..	..	4	29,450
Others	..	..	..	..	....	17,455
Wildcats	4	..	2	2	....	.....
Totals	12	7	3	2	366	988,190

¶Includes, Webb, Jim Hogg, and Zapata Counties.

TEXAS GULF COAST

Field—	Completions	Producers	Gas Wells	Failures	Initial Prod.	Monthly Prod.
*Barbers Hill	..	..	..	..	....	.....
Batson	1	1	..	..	25	40,705
Big Creek	2	2	..	..	620	92,630
Blue Ridge	1	..	..	1	....	99,200
Boling	..	..	..	..	....	52,330
Damon Mound	..	..	..	..	....	28,305
Goose Creek	3	3	..	..	370	254,200
*High Island	..	..	..	..	....	.....
Hull	8	5	..	3	2,610	468,871
Humble	..	..	..	..	....	93,000
Orange	2	2	..	..	251	159,280
*Orchard	..	..	..	..	....	.....
Pierce Junction	1	1	..	..	2,500	186,775
Saratoga	1	..	..	1	....	37,200
Sour Lake	1	1	..	..	50	132,155
South Liberty	1	1	..	..	40	87,575
Spindle Top	9	6	..	3	8,905	1,686,400
W. Columbia	..	..	..	..	....	287,155
Others	..	..	..	..	....	126,325
Wildcats	7	1	1	5	20	.....
Totals	37	23	1	13	15,391	3,832,110

*Included in Others.

NORTH LOUISIANA

Bellevue	..	..	..	..	....	40,300
Caddo Parish	11	6	5	..	5,567	736,655
Cotton Valley	..	..	..	..	....	168,575
De Soto Red River	2	1	1	..	18	124,405
Elm Grove	..	..	..	..	....	20,150
Grant Parish	1	1	..	..	200	.....
Haynesville	..	..	..	..	....	227,850
Homer	..	..	..	..	....	149,605
LaSalle Parish	5	5	..	..	93	.....
Monroe	..	..	..	..	....	.....
Pleasant Hill	..	..	..	..	....	28,675
OuachitaParish	1	..	1	..	....	.....
RichlandParish	1	..	1	..	....	.....
Sabine Parish	5	4	1	..	2,055	.....
Union Parish	2	..	2	..	....	.....
Urania	..	..	..	..	....	298,005
WebsterParish	2	1	1	..	50	.....
Winn Parish	1	..	1	..	50	.....
Others	..	..	..	..	....	.....
Wildcats	22	2	..	20	80	.....
Totals	53	20	13	20	8,063	1,794,220

SOUTH LOUISIANA

Eagle Point	..	..	..	..	....	.....
Edgerly	3	3	..	..	2,755	68,605
Evangeline	3	2	..	1	145	33,325
Lockport	5	5	..	..	3,660	163,925
Starks Dome	..	..	..	..	....	.....
Sweet Lake	..	..	..	..	....	.....
Vinton	5	3	..	2	170	163,525
Others	..	..	..	..	....	31,775
Wildcats	..	..	..	..	....	.....
Totals	16	13	..	3	6,730	461,155
North La.	53	20	13	20	8,063	1,794,220
La. Totals	69	33	13	23	14,793	2,255,375

ARKANSAS

Bradley	..	..	..	..	....	.....
El Dorado	..	..	..	..	....	180,575
Nevada	7	5	2	..	825	62,405
Lisbon	..	..	..	..	....	106,950
Smackover	14	11	2	1	1,260	2,908,675
Stephens	..	..	..	..	....	41,075
Others	..	..	..	..	....	3,100
Wildcats	6	..	..	6	....	.....
Totals	27	16	4	7	2,085	3,302,780

CALIFORNIA

	Completions	Producers	Gas Wells	Failures	Initial Prod.
Athens-Athens-Rosecrans	..	..	..	..	....
Baldwin Hills-Inglewood	4	4	..	..	1,070
Brea-Richfield	5	5	..	..	1,100
Goleta	1	1	..	..	300
Huntington Beach	12	12	..	..	2,150
Kern Front	10	10	..	..	1,685
Long Beach	4	4	..	..	3,450
Midway	2	2	..	..	245
Piru	1	..	1	..	....
Seal Beach	16	15	..	1	19,810
South Mountain	1	1	..	..	250
Sunset	1	1	..	..	340
Torrance	1	1	..	..	80
Ventura	4	4	..	..	8,600
Wildcats	1	..	..	1	....
Totals	62	59	1	2	39,080

Deep Sand Production Boosts Seal Beach Output

Fullerton district becoming active despite number of shut-in producers; Round Mountain drilling rushed

LOS ANGELES—The early history of Seal Beach field has been re-enacted during the past week, when seven wells were completed with an average initial production of 1770 barrels. Four of the wells were re-completed and had a combined production of 8300 barrels. It now seems that the production trend will not be downward for several weeks unless the Wasem sand fails to be productive under a large acreage in the townlot area. Field production jumped from 59,000 to 64,000 barrels during the past week.

The operators, spurred on by the large production of the deepened wells, are not satisfied with small production in the upper Selover zone and are now completing many wells in the Wasem sand. If the customary 4900-foot level does not show a satisfactory yield, the wells are carried on down to the deeper sands with little ceremony.

The campaign for deeper production is gaining speed daily and nearly all faltering Selover wells are being deepened in the Alamitos Heights sector. More than half of the drilling wells in the townlot area are headed for the deeper sands.

Re-completions

The Marland Oil Company greatly increased its production in the field by the re-completion of Selover 12. This remarkable well was re-completed at 5360 feet with an initial production of 2600 barrels. It was distinctly a Wasem zone well. Selover 12 was originally completed June 1 at 4942 feet, in the Selover sand. Selover 6, which was a recent 2000-barrel re-completion, has gradually increased its production to 2100 barrels. By virtue of its holdings in the townlot area, which has been the scene of the most intensive development, the Marland Oil Company has been able to hold its production to 18,000 barrels for more than two months.

The General Petroleum Corporation proved the value of consistency in completing Whitehart 1, which was hardly given a chance for production before the deeper sand was discovered. Independent interests originally started the well, but later transferred it to General. It was completed as a 1400-barrel well at 5348 feet. The General Petroleum Corporation has been very fortunate in completing edge wells and was the discoverer of the Wasem sand.

George F. Getty, who has developed a large production in the upper Selover sand, has re-completed two good wells in the deeper sands. His No. 1 was re-completed at 5100 feet, with an initial production of 1800 barrels, and No. 6 was a 2300-barrel producer at 5254 feet. Both of these wells were only recently killed outright to deepen.

The California Eastern Oil Company has completed Raymond 1 as a 1700-barrel producer at 5256 feet. The upper sand was not utilized and the wisdom of the move was proven by the size of the well in the lower sand. The company also re-completed Persons 1 at 5303 feet, with a new production of 1600 barrels.

Union Avenue

The Pacific Eastern Production Company has recovered the two and one-half-inch tubing in its Union Avenue well, near Bakersfield, and will replace it with a string of heavy three-inch drill pipe. An effort was made to clean out the well with the tubing but sand prevented it. It was also impossible to secure the proper circulation, due to the action of the sand. The well is now making very little gas and the chance of securing commercial production at the present depth is considered very remote.

The Fullerton district, which is one of the oldest producing sections in the State, is showing more activity than many of the larger districts in the Los Angeles basin. More than two dozen wells are being drilled, despite the fact that the district has a large number of wells shut in. Efforts are being made to extend the producing limits of the fields as well as to determine the value of the lower sands. Some of the operating companies only recently entered the field and have not yet developed production. Notably among these is the Petroleum Securities Company. A district with much new development and a large shut-in production is a rare combination in California. The Standard, Union and California Petroleum interests are all actively engaged in the development of the region.

Ventura

The Associated Oil Company has succeeded in completing Hartman 6 in the Ventura field. The well was finished at 6885 feet and the initial production of 450 barrels was a distinct disappointment. The new producer is one of the deepest in the field and clearly indicates that the depth of production is gradually downward. The crude tested 29 gravity and showed a cut of 9 per cent. It is interesting to note the depths at which the casing was set and the amount of open hole. The 11-inch casing was cemented at 3950 feet and the eight and five-eighths-inch string cemented at only 4875 feet. Three-inch tubing was run to 4780 feet. The cost of such a well is enormous and production has to be maintained to make the venture profitable. The Associated interests have completed several large wells, however, and Hartman 6 merely cuts down the average initial production.

The C. J. Magenheimer interests stand an excellent chance of extending the producing limits of the Ventura field, by virtue of late developments in Hartman 1, which has had several hundred feet of promising oil sand from 6140 feet to 6475 feet. The well is now being swabbed and the gas pressure indicates a flowing well. Should the well be a producer, the field will be extended several locations to the north.

Round Mountain

The Round Mountain district, near Bakersfield, is expected to become active if leaseholders continue to start tests on the various parts of the structure. Offsetting is expected as the result of the eagerness of some of the operators to definitely prove their holdings. The Elbe Oil Company, discoverer of the field, is now completing a second well and has completed a rig for the third test. The St. Helen Petroleum Company is approaching a depth of 1900 feet in its test on section 13-28-28. The well seems to be much higher on the structure than the Elbe discovery well, which was completed at 2069 feet. The Little & Bell Producing Company is drilling at a fast pace on section 19-28-29, having passed 1600 feet. This well also seems fairly low on the structure. The Elbe Oil Company has plugged back for the third time in an effort to complete its second well in the new field. Bottom water has bothered and a series of plugs have been used. The hole was originally drilled to 2165 feet, but water prevented a successful completion. The third plug has been set at 2110 feet and another production test will be made as soon as possible. The Marland and Shell interests have extensive holdings on the structure but have not announced a development program. It is believed that they will not drill in the immediate future unless forced to offset on their most promising leases.

The Fullerton Oil Company recently completed No. 22 in the Brea-Olinda field as a 590-barrel well. The total depth was 5200 feet and the producer was distinctly a lower zone well. Production declined rapidly from the initial and settled at 375 barrels. Considering the depth, the well was somewhat disappointing. The 6¼-inch casing was cemented at 4050 feet and a 4½-inch oil string successfully landed on bottom. The latter included 1150 feet of perforated casing. A string of 2½-inch tubing was run to 4490 feet. The crude tested 27 gravity and showed a cut of 1.4 per cent. The deeper sands will be tested in other parts of the field.

CRUDE OIL PRICE QUOTATIONS

CURRENT POSTINGS

EASTERN STATES

	Aug. 31 1927
New York Transit	2.65
Bradford District	2.65
National Transit	2.55
Southwest	2.55
Eureka	2.50
Buckeye	2.25
Macksburg	2.80
Gaines	2.60
Somerset	1.70
Cabell	1.60
Ragland	.95
Corning, 35-cent grade	1.45
Corning, 25-cent grade	1.35
Keister	1.30

CENTRAL STATES

Illinois	1.60
Indiana	1.48
Lima	1.71
Plymouth	1.33
Princeton	1.60
Waterloo	1.18
Wooster	1.57

WESTERN KENTUCKY

Posted by Stoll Refining Company for crude from Allen, Warren, Franklin, Davies, Barren,

All grades	1.50
28 to 28.9 gravity	1.12
29 to 29.9 gravity	1.14
30 to 30.9 gravity	1.16
31 to 31.9 gravity	1.18
32 to 32.9 gravity	1.20
33 to 33.9 gravity	1.22
34 to 34.9 gravity	1.24
35 to 35.9 gravity	1.26
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.30
38 to 38.9 gravity	1.32
39 to 39.9 gravity	1.34
40 to 40.9 gravity	1.36
41 to 41.9 gravity	1.38
42 to 42.9 gravity	1.40
43 to 43.9 gravity	1.42
44 to 44.9 gravity	1.44

MID-CONTINENT

Prairie, Sinclair, Gulf, Texas

	Aug. 31 1927
45 to 45.9 gravity	1.48
47 to 47.9 gravity	1.50
48 to 48.9 gravity	1.52
49 to 49.9 gravity	1.54
50 to 50.9 gravity	1.56
51 to 51.9 gravity	1.58
52 and above	1.60

Magnolia Petroleum Company

Below 33	$1.05
33 to 33.9 gravity	1.07
34 to 34.9 gravity	1.09
35 to 35.9 gravity	1.11
36 to 36.9 gravity	1.13
37 to 37.9 gravity	1.15
38 to 38.9 gravity	1.17
39 to 39.9 gravity	1.19
40 to 40.9 gravity	1.21
41 to 41.9 gravity	1.23
42 to 42.9 gravity	1.25
43 to 43.9 gravity	1.27
44 to 44.9 gravity	1.29
45 to 45.9 gravity	1.31
46 to 46.9 gravity	1.33
47 to 47.9 gravity	1.35
48 to 48.9 gravity	1.37
49 to 49.9 gravity	1.39
50 to 50.9 gravity	1.41
51 to 51.9 gravity	1.43
52 and above	1.45

NORTH AND CENTRAL TEXAS

Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona Crude

Humble O. & R. Co.* and Texas Co.

28 to 28.9 gravity	1.12
29 to 29.9 gravity	1.14
30 to 30.9 gravity	1.16
31 to 31.9 gravity	1.18
32 to 32.0 gravity	1.20
33 to 33.9 gravity	1.22
34 to 34.9 gravity	1.24
35 to 35.9 gravity	1.26
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.30
38 to 38.9 gravity	1.32
39 to 39.9 gravity	1.34
40 to 40.9 gravity	1.36
41 to 41.9 gravity	1.38
42 to 42.9 gravity	1.40
43 to 43.9 gravity	1.42
44 to 44.9 gravity	1.44
45 to 45.9 gravity	1.46
46 to 46.9 gravity	1.48
47 to 47.9 gravity	1.50
48 to 48.9 gravity	1.52
49 to 49.9 gravity	1.54
50 to 50.9 gravity	1.56
51 to 51.9 gravity	1.58
52 and above	1.60

Corsicana Heavy, 1.00 per barrel, posted by Magnolia.

*Until further notice, Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes purchased at a gravity lower than 28 degrees will be paid for at the posted price for 28 degrees gravity.

SOUTH TEXAS

Mirando	1.00

SOMERSET

Grayburg

Below 33 gravity	$1.05
33 to 33.9 gravity	1.07
34 to 34.9 gravity	1.09
35 to 35.9 gravity	1.11
36 to 36.9 gravity	1.13
37 to 37.9 gravity	1.15
38 and above	1.17

GULF COAST

Grade "A" all companies	1.20
Gulf Coast Light Oil, Below 25	1.15
25 to 25.9 gravity	1.17
26 to 26.9 gravity	1.19
27 to 27.9 gravity	1.21
28 to 28.9 gravity	1.23
29 to 29.9 gravity	1.25
30 to 30.9 gravity	1.27
31 to 31.9 gravity	1.29

(Continued on page 94)

CALIFORNIA CRUDE OIL PRICES AT THE WELL

Following are the current prices offered by Standard Oil Company for crude oil at the well: (Price per barrel of 42 galoins in fields indicated)

Gravity (degrees)	Signal Hill	Seal Beach	Huntington Beach	Inglewood	Olinda-Brea Canon	Athens-Rosecrans Dominguez	Torrance	Richfield	Whittier La Harbra	Montebello	Coyotte Hill	Santa Fe Springs	Newhall McKittrick Kern River	Midway Sunset Elk Hills	Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14-9	$ .85	$ .85	$ .85	$ .85	$ .85	$ ..	$ .85	$ .85	$ .85	$ .85	$ .85	$ ..	$ .75	$ .75	$ .75	$ .75	$ .75	$ .75
15-15-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
16-16-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
17-17-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
18-18-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
19-19-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
20-20-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	..	.77	.77	.77	.76	.76
21-21-9	.86	.86	.86	.86	.86	..	.86	.86	.85	.85	.86	.85	..	.79	.79	.79	.77	.77
22-22-9	.87	.87	.87	.87	.87	..	.87	.87	.85	.85	.87	.85	..	.81	.81	.81	.78	.78
23-23-9	.88	.88	.88	.88	.88	..	.88	.88	..	.85	.88	.85	..	.83	.83	.83	.79	.79
24-24-9	.89	.89	.89	.89	.89	..	.89	.89	..	.85	.89	.85	..	.85	.85	.85	.80	.80
25-25-9	.90	.90	.90	.90	.90	.90	.90	.90	..	.86	.90	.86	..	.87	.87	.87	.81	.81
26-26-9	.92	.92	.92	.92	.92	.92	.92	.92	..	.87	.91	.87	..	.89	.89	.89	.83	.83
27-27-9	.94	.94	.94	.94	.94	.94	.94	.94	..	.88	.92	.88	..	.91	.91	.91	.85	..
28-28-9	.96	.96	.96	.96	.96	.96	.96	.96	..	.89	.93	.89	..	.93	.93	.93	.87	..
29-29-9	.98	.98	.98	..	.98	.98	..	.98	..	.90	.94	.91	..	.96	.96	.96	.89	..
30-30-9	1.00	1.00	1.00	..	1.00	1.00	..	1.00	..	.91	.95	.93	..	.99	.99	.99	.91	..
31-31-9	1.03	1.03	1.03	..	..	1.03	..	..	..	..	..	.95	..	1.02	1.02	1.02	.93	..
32-32-9	1.06	1.06	1.06	..	..	1.06	..	..	..	..	..	.97	..	1.05	1.05	1.05	.95	..
33-33-9	..	..	..	..	..	1.09	..	..	..	..	..	.99	..	1.08	1.08	1.08	.97	..
34-34-9	..	..	..	..	..	1.12	..	..	..	..	..	1.01	..	..	..	1.11	.99	..
35-35-9	..	..	..	..	..	1.15	..	..	..	..	..	1.03	..	..	..	..	1.01	..
36-36-9	..	..	..	..	..	1.18	..	..	..	..	..	1.06	..	..	..	..	..	..
37-37-9	..	..	..	..	..	1.21	..	..	..	..	..	1.09	..	..	..	..	..	..
38-38-9	..	..	..	..	..	1.24	..	..	..	..	..	1.12	..	..	..	..	..	..
39-39-9	..	..	..	..	..	1.27	..	..	..	..	..	1.15	..	..	..	..	..	..
40-40-9	..	..	..	..	..	1.30	..	..	..	..	..	..	..	..	..	..	..	..
41-41-9	..	..	..	..	..	1.33	..	..	..	..	..	..	..	..	..	..	..	..
42-42-9	..	..	..	..	..	1.36	..	..	..	..	..	..	..	..	..	..	..	..

This SIGN will tell a motorist you have *two reasons* why he should drive into your station.

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Seals Power at every Degree of Wear

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Say you saw it in The OIL WEEKLY

	Aug. 31 1927
32 to 32.9 gravity	1.31
33 to 33.9 gravity	1.33
34 to 34.9 gravity	1.35
35 to 35.9 gravity	1.37
36 to 36.9 gravity	1.39
37 to 37.9 gravity	1.41
38 to 38.9 gravity	1.43
39 to 39.9 gravity	1.45
40 and above	1.47

*Humble Oil & Refining Company's postings on Gulf Coast Light stop at 35 to 35.9. Its price on all crudes above 35 is $1.37 per barrel.

Magnolia Petroleum Company's postings stop at 31 to 31.9.

MARKHAM

The Texas Company

All grades	1.00

LULING

All grades	1.00

TEXAS PANHANDLE

(Gulf Refining Company and Kay County Gas Company)

Hutchinson, Carson and Gray Counties, all grades	.95

(Humble Oil & Refining Company and Magnolia Petroleum Company)

Hutchinson, Carson and Wheeler counties, all grades	.75

Gray County

(Humble Oil & Refining Company)

28 to 28.9 gravity	.80
29 to 29.9 gravity	.82
30 to 30.9 gravity	.84
31 to 31.9 gravity	.86
32 to 32.9 gravity	.88
33 to 33.9 gravity	.90
34 to 34.9 gravity	.92
35 to 35.9 gravity	.94
36 to 36.9 gravity	.96
37 to 37.9 gravity	.98
38 to 38.9 gravity	1.00
39 to 39.9 gravity	1.02
40 to 40.9 gravity	1.04
41 to 41.9 gravity	1.06
42 to 42.9 gravity	1.08
43 to 43.9 gravity	1.10
44 and above	1.12

(Humble Oil & Refining Company)

Crane, Upton, Crockett and Pecos counties, all grades	.60

Crane, Upton, Crockett* Counties

Gulf and Kay County Gas Company

Below 26 gravity	.70
26 to 26.9 gravity	.72
27 to 27.9 gravity	.74
28 to 28.9 gravity	.76
29 to 29.9 gravity	.78
30 to 30.9 gravity	.80
31 to 31.9 gravity	.82
32 to 32.9 gravity	.84
33 to 33.9 gravity	.86
34 to 34.9 gravity	.88
35 to 35.9 gravity	.90
36 and above	.92

*Gulf does not post in Crockett County.

Magnolia Petroleum Company and Kay County Gas Company

Howard County (Chalk Field)	1.05

Col-Tex Refining Company

Mitchell County	$ .93

WYOMING-MONTANA

Wyoming

Byron	1.33
Ferris	1.60
Elk Basin	133
Grass Creek	1.33
Rock Creek	1.25
Lost Soldier	.95
Lance Creek	1.33
Mule Creek	1.10
Notches	.65
Big Muddy	1.25
Osage	1.33
Hamilton Dome	.85
Pilot Butte	1.75
Torchlight-Greybull	1.55
Lander	.80
Simpson Ridge	.80
Rex Lake	1.10
South Casper Creek-Poison Spider	1.00

Salt Creek

Midwest Refining Company

29 to 29.9 gravity	1.14
30 to 30.9 gravity	1.16
31 to 31.9 gravity	1.18
32 to 32.9 gravity	1.20

	Aug. 31 1927
33 to 33.9 gravity	1.22
34 to 34.9 gravity	1.24
35 to 35.9 gravity	1.26
36 to 36.9 gravity	1.28
37 and above	1.30

MONTANA

Sunburst	1.35
Cat Creek	1.33
Lake Basin	2.20

NEW MEXICO

Artesia	1.00
Hogback	1.38

CANADIAN CRUDE

Oil Springs	2.18
Petrolia	2.11

*Bounty on Canadian crude is ¾ cent per gallon, or 26¼ cents per barrel.

LOUISIANA-ARKANSAS

(Standard of Louisiana, Louisiana Oil Refining Company, Gulf Refining Company of Louisiana and The Texas Co.) Homer, Haynesville, Caddo, El Dorado, De Soto and Chrichton.

Below 28 gravity	1.10
28 to 28.9 gravity	1.12
29 to 29.9 gravity	1.14
30 to 30.9 gravity	1.16
31 to 31.9 gravity	1.18
32 to 32.9 gravity	1.20
33 to 33.9 gravity	1.22
34 to 34.9 gravity	1.24
35 to 35.9 gravity	1.26
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.30
38 to 38.9 gravity	1.32
39 to 39.9 gravity	1.34
40 to 40.9 gravity	1.36
41 to 41.9 gravity	1.38

	Aug. 31 1927
42 to 42.9 gravity	1.40
43 to 43.9 gravity	1.42
44 to 44.9 gravity	1.44
45 to 45.9 gravity	1.46
46 to 46.9 gravity	1.48
47 to 47.9 gravity	1.50
48 to 48.9 gravity	1.52
49 to 49.9 gravity	1.54
50 to 50.9 gravity	1.56
51 to 51.9 gravity	1.58
52 and above	1.60

Atlantic Oil Producing Company posts this same schedule on Homer, Haynesville, and West El Dorado.

Magnolia Petroleum Company has the same posting on Pine Island, Haynesville, Eldorado and Bull Bayou.

STEPHENS

(All Companies)

Below 28	1.00
28 to 28.9 gravity	1.04
29 to 29.9 gravity	1.04
30 to 30.9 gravity	1.06
31 to 31.9 gravity	1.08
32 and above	1.10

SMACKOVER

(All Companies)

Below 24 gravity	$1.00
24 and above	1.25
Bellevue	1.25
Jennings	1.15
Vinton	1.30
Edgerly	1.30
Starks Dome	1.30
Urania	1.00
Cotton Valley	1.00
Calion	1.00

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

American Petroleum Institute Figures. Barrels of 42 gallons)

	Week Ended August 20	Week Ended August 13
AT ATLANTIC COAST PORTS—		
Baltimore	211,000	140,000
Boston	30,000	.....
New York	594,000	419,000
Philadelphia	.....	115,000
Others	119,000	180,000
Total	954,000	854,000
Daily average	136,285	122,000
AT GULF COAST PORTS—		
Galveston District	.....	40,000
New Orleans and Baton Rouge	252,000	130,000
Port Arthur and Sabine District	.....	.....
Tampa	.....	.....
Total	252,000	170,000
Daily average	36,000	24,285
AT ALL UNITED STATES PORTS—		
Total	1,206,000	1,024,000
Daily average	172,285	146,285
Daily average four weeks ended	182,357	165,786

RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

American Petroleum Institute Figures. Barrels of 42 gallons)

	Week Ended August 20	Week Ended August 13
AT ATLANTIC COAST PORTS—		
Baltimore	296,000	.....
Boston	.....	.....
New York	365,000	335,000
Philadelphia	77,000	234,000
Others	291,000	138,000
Total	1,029,000	707,000
Daily average	147,000	101,000
AT GULF COAST PORTS—	.....	.....
Total Atlantic & Gulf Coast Ports	1,029,000	707,000
Daily average	147,000	101,000
Daily average four weeks ended	96,107	99,286
DISTRIBUTION OF TOTAL CALIFORNIA OIL RECEIPTS IS AS FOLLOWS:		
Crude	264,000	337,000
Gasoline	448,000	232,000
Gas Oil	163,000	.....
Fuel Oil	154,000	138,000
Total	1,029,000	707,000

Pierce Junction Salt Dome, Harris County, Texas

By W. F. BOWMAN
Associated Oil Company

PIERCE JUNCTION Salt Dome is located in southern Harris County about seven miles slightly west of south from Houston. The Galveston, Harrisburg and San Antonio Railroad passes over the north end while the International and Great Northern crosses the east edge. A paved highway extends out to the dome from Houston.

With relation to other oil fields Pierce Junction is located seven miles northeast from Blue Ridge, 26 miles slightly west of south from Humble, and 24 miles nearly west from Goose Creek.

History of Developments

The first oil developments in the vicinity of Pierce Junction of which we have any knowledge was that of P. M. Grandberry and H. T. Staiti, who organized the Harris County Development Company in 1901. These operators were attracted to the area because of a slight topographic high which was thought to be due to some structural features underneath. Although this elevation is very silght, a similarity to the mounds at Spindle Top and Damon was considered probable. This, with a gas blowout which had occurred in a water well being drilled by a man named Warnacke several years previously, and the presence of paraffine dirt and mineralized waters in the area caused these operators to start their developments.

The Harris County Development Company drilled three wells during the years 1901 to 1904. These wells were located southeast of the topographic high on the Taylor land near the center of James Hamilton Survey No. 52. Their first well was drilled to a depth of 385 feet where a gas blowout occurred. They then moved southwest and drilled their second test and later to the north and drilled their third. The second well is reported to have encountered an oil sand from 740 to 755 feet, cap rock at 755, and salt at 953 feet. They most probably left off in salt at 1207 feet. Their third well was taken over by Sharp et al, at a depth of 805 feet. These people drilled it down to 1100 feet reporting "gyp" at 855.

After the abandonment of operations by the Harris County Development Company, Howard R. Hughes and associates acquired the Taylor lease and a portion of the Dooley land adjoining it on the north. In 1905 these operators started their first well, located near the top of the topographic high and northwest of the Harris County Development Company wells. This well reported a number of shows, the best of which was at about 740 feet where the well was shot in an effort to bring in oil, but a large volume of salt water was developed. This well was completed to a depth of about 1300 feet, but no information is available as to the formations encountered lower down. From this location Hughes moved up near the northwest corner of the Taylor lease, near the old Warnacke water well in which a gas blowout had occurred, for his second test. In this well, he went to a depth of about 650 feet where the well was lost in a gas blowout. He then moved west 50 feet and started another test but never got very deep in it. During this time he had started a well on what is now the Cain land east of the field. This well went to about 1400 feet through sands, clays and gumbos without encountering any favorable shows.

During 1906 while the Hughes operations were being carried on, H. T. Staiti drilled one well, T. H. Bass two, and the Skidoo Oil Company one. The Staiti well which was located east of the present field on the east side of the dome, went through gumbos and sand to a depth of about 1100 feet and was lost while trying to set casing when the hole collapsed.

The first Bass well was located on the Dooley land in the southwest corner of the Jas. Hamilton Survey No. 51. It was drilled to a depth of 900 feet. Casing was run to 860 feet, but failed to cut off the water. The well was later drilled deeper encountering salt at slightly below 1000 feet. The second Bass well was located in the northwest corner of the Taylor land. Casing was set in it at 710 feet. Just below this 85 feet of gypsum was encountered below which there was reported 15 feet of blue shale and then 200 feet of gypsum, beneath which salt was encountered at 1010 feet. The well was abandoned after bailing warm salt water.

The Skidoo Oil Company well was located west of the dome on the Settegast land. Clay, sands and gumbos were encountered in it to a depth of about 1300 feet where it was abandoned. This company drilled two more wells during 1907, one of which was located on the Settegast land in the same vicinity as the first. It also went to about 1300 feet, while the other, which was located on the Ritter land north of the railroad, went to a depth of about 1200 feet. Neither encountered dome material.

During the time between 1907 and 1913 no operations were being carried on at Pierce Junction. The next development to be started in this area was that of the Even Up Oil Company which completed its first well on the Settegast land in October, 1913, at a depth of 1070 feet, after having penetrated "gypsum, sulphur and limestone" below 856 feet. Afterwards this company drilled two wells on the Fitzsimmons and two on the Taylor lands ending its operations sometime in 1914. Each of these wells encountered dome material below 633 feet and were abandoned at depths of less than 1650 feet.

During 1914 Putnam and associates drilled six wells, two of which were completed in 1915, the J. M. Guffy Petroleum Company drilled one, the Producers Oil Company (The Texas Company) drilled two, and the Last Dollar Oil Company drilled two. Of these wells the Putnam Taylor 1 and Whitehead 1, the Last Dollar Oil Company Whitehead 1 and probably Dooley 1 encountered dome material and were abandoned. The other wells were all off the dome and were abandoned at depths of less than 2840 feet without encountering any interesting results. The Putnam Whitehead 1 encountered an oil sand from 722 to 750 feet which when tested made about seven barrels of oil per day. As gusher oil, or big production, was being hunted, the well was drilled deeper encountering the dome before being abandoned.

Drill For Sulphur

Except for the two wells being completed by Putnam in 1915, there was no work being done at Pierce Junction during 1915 and 1916, but during 1917 the Southern Sulphur Company began the drilling of two wells on the Settegast land in search for sulphur. Very favorable reports were made regarding sulphur encountered in these wells, but there is no reliable data to substantiate these reports. The operations of this company ceased in 1918.

In 1918 Drummett and Crossland began the drilling of a series of seven wells, some of which were completed in the name of the Gambler Oil Company, the Commonwealth Oil Company and the Cross-Stream Oil and Development Company. Their last well which was the Cross-Stream's well was completed in 1921. These wells were located on the Settegast and Mowery land southwest of the dome. Three of them were reported to have been completed in cap rock and salt at less than 1600 feet. The others were off the dome and went deeper,

but no favorable indications were encountered.

During 1919 H. T. Staiti, who had been one of the prime movers in the Southern Sulphur Company, the Harris County Development Company and other companies which had drilled wells in the Pierce Junction area, began operations for the Texas Exploration Company. A rather large drilling program was launched and 16 wells were drilled in 1919, 1920 and 1921. Of this number 10 were reported to have encountered cap rock and salt at less than 1000 feet and were abandoned. The other six were off the dome and went to depths down to 4655 feet.

Of these which encountered dome material one located on the Whitehead land near the center of the south side of Jas. Hamilton Survey No. 51 blew gas for about 15 days from a sand encountered at 681 to 694 feet. The balance were dry. Of the deep wells the last two completed came in for large initial producers, but never held up very long. The Humble Oil and Refining Company about this time took over the properties of the Texas Exploration Company.

In 1920 after the salt in this dome had been pretty well outlined by the drilling of other companies, the Gulf Production Company acquired leases on the Taylor, Cain, Fitzsimmons and numerous other lands located over and adjacent to the dome, and began a development campaign which lasted through 1923. During 1924 it shut down drilling operations which were resumed during the latter part of 1925. Development during 1920 to 1923, with the exception of one well on the Settegast land west of the dome, one on the Consolidated Royalties Company northwest of the dome and one each on the Hume and Whitehead Hamman land northeast of the dome, were all on the east side. During 1926 and 1927 seven wells were completed on fee lands on the west side.

The Gulf's operations have all been limited to a search for deep lateral sands, and with the exception of No. 14 Taylor, which lost returns and was thought to have encountered dome material at 972 feet, all have been completed to depths below 3300 feet and many to below 4000. To the present the company has completed 36 wells in the field, 16 of which were dry and abandoned while three were completed as gas wells and 17 as oil producers.

During 1920 the Simms Oil Company drilled a well on the Kirby land about half a mile north of the north edge of the dome to depth of 4001 feet, but no favorable results were reported from it. It was located too far out to have very good chances.

In 1921 the Atlantic Oil Producing Company, John Deering and associates, the Metropolitan (Old Dominion) Oil Company, Kirby Petroleum Company, Brooks and Cullen, the Humble Oil and Refining Company and Snowden-McSweeney Company started developments in the area. The Atlantic Oil Producing Company drilled two dry holes, one on the southeast and the other on the south side of the dome. The one on the southeast was probably located too far from the dome to be productive. In the one located on the south good cores showing oil were gotten, casing and screen were set to test, but probably because of too much formation having been drilled below the casing and poor water shutoffs made, water came in and the well was abandoned. It is probable some kind of a productive well would have been made had only one sand been tested at a time.

The John Deering and Metropolitan wells, both located southeast of the dome, were too far out and too low on the structure to be productive. The Kirby well located on the south edge of the dome encountered cap rock and salt and was abandoned at 1575 feet.

Cullen and Brooks drilled three wells under the name of the Pierce Junction Oil Company, three under the name of H. R. Cullen et al, and one under the neme of R. E. Brooks et al. The first which was known as the Pierce Junction Oil Company Howe 1, located southeast of the dome and came in for about 5000 barrels initial production. After this well had made about 200,000 barrels of oil and while still producing about 200 barrels per day, it was lost in a work over job. The last three wells, which were drilled in the name of Cullen et al, were located only a short distance from this producer. One was completed as a small producer but was later abandoned. The other wells drilled by these two promoters were dry and abandoned at depths between 4125 and 4706 feet.

The Humble Oil and Refining Company began operations in the area by the purchase of the Texas Exploration Company properties on the north flank of the dome, just after two productive wells had been completed. It immediately launched into a big drilling campaign and by the end of 1923 had drilled 18 wells. One of these on the northeast edge encountered cap rock and salt and was abandoned at 1189 feet, three were junked at depths of 2585, 2744 and 3793 feet without tests, one was lost and junked in a gas blowout at 3767 feet after plugging back from a total depth of 3865 feet, one encountered salt at 3652 feet, six were completed as dry holes at depths between 3696 and 4660 feet, while six were completed as producing oil wells. At present this company has ceased operations in the area and have released most of their acreage on the north side. On the south side they have recently purchased other acreage.

The Snowden-McSweeney Company which was the first to find commercial production in the area began their operations during 1921. Their operations were all limited to the Cain lease on the east side. Seven wells were drilled ranging from 3838 to 4440 feet deep. All were completed as producers except one which was tested in the productive horizon, but failed to produce and was drilled to 4440 feet and abandoned. These people ceased their operations during the latter part of 1923. Since that time all wells have been abandoned and the lease turned back to the Gulf Company which had subleased it to them.

During 1922 the Sun Oil Company, the Seagate Petroleum Company (J. W. Maxey et al), the Sinclair Oil and Gas Company, the Florida Texas Oil Company and the Link Oil Corporation completed wells in the area. The well on the south side drilled under the joint operations of the Humble Oil and Refining Company, the Atlantic Oil Producing Company and the Link Oil Corporation was also completed during 1922. The Sun Oil Company operations were limited to the north and northeast sides where it drilled six wells. One encountered cap rock and salt shallow and was abandoned. The others went to depths between 3405 and 3988 feet. One of these was completed as a producing oil well, one was a dry gasser, while the balance were dry holes. The company has now withdrawn its operations from the area.

The Sinclair Oil and Gas Company and the Link Oil Corporation, both located northeast of the dome, the Seagate Petroleum Company, located east, and the Florida-Texas Oil Company well on the south were all too far from the dome to be expected to have very good chances for production and were abandoned at depths of about 4000 to 4500 feet.

During 1923 the Texas Coastal Oil Company and Smith and Masterson completed wells in the area. The Smith and Masterson well was located on the south edge of the dome and was abandoned after encountering cap rock and salt. The Texas Coastal Oil Company well which was located southwest of the dome, was drilled 4380 feet where a test was made and a small amount of oil produced, but on account of mechanical difficulties the well was not commercial. Shows gotten in this well induced the Gulf Production Company to drill a test a short distance to the northeast.

No new developments were started in 1924 and the field was quiet except for the pumping wells of the Gulf Production Company, Snowden and McSweeney, the Humble Oil and Refining Company, and possibly one or two wells of Cullen and Brooks. During 1925 the Rio Bravo Oil Company acquired a lease on a portion of the Settegast land on the west side of the dome. This acreage adjoined fee acreage which had been owned by Rio Bravo for a number of years. It immediately started a drilling campaign which is still under way. Sixteen wells have been completed, 14 of which have been oil producers, one is a gas well and one was dry.

During 1926 Joe Bashara started the drilling of six wells, the Marland Oil Company four, the Gulf Production Company seven, the Navarro Oil Company four, the Humphreys Corporation one, Martin Drake et al one, and Mike Kouri one. All were located on the west side of the dome with the exception of three Navarro Oil Company wells on the Cain tract on the east side. With the exception of the Navarro Oil Company Cain 3 and Mike Kouri wells all were completed as producers. The Kouri well was too close to the dome and went into salt.

During 1927 to date, drilling activities have continued in spite of the low mar-

ket condition for the oil. New operators coming into the field are Woodward and Lee, Long et al, Moody Oil Corporation, and Anderson and Plumber. The Woodward and Lee well on the west side went into salt. The Moody Corporation well on the northeast side of the dome also reported salt while the other wells have all been completed as producers.

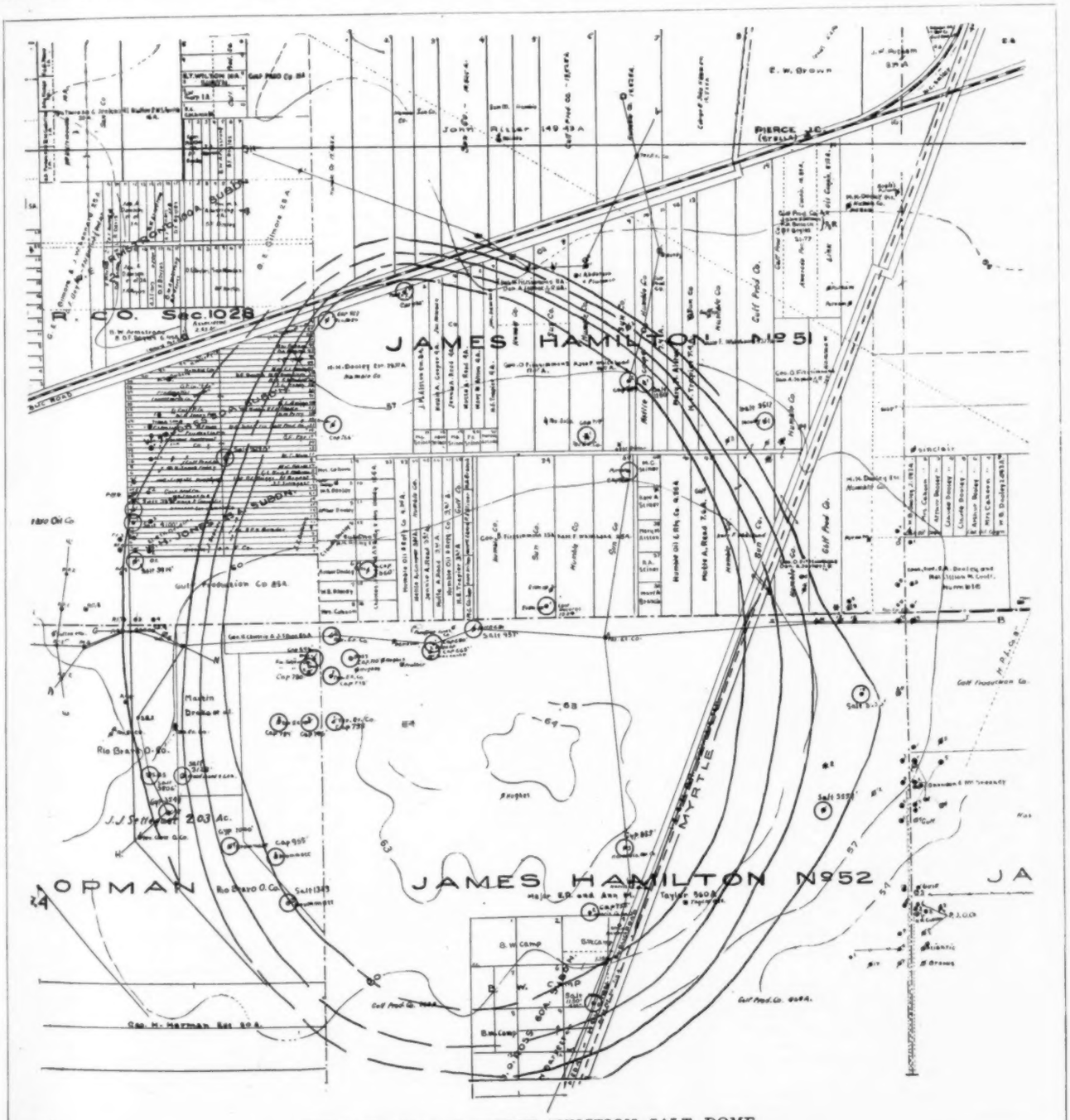
Results of Development

Since the starting of operations in this area in 1901 some 35 different companies and individuals have drilled a total of about 180 wells in the area. Of this number 52 had been completed before commercial production was found by the Snowden-McSweeney Company in July of 1921. Between July, 1921, and January 1, 1927, a total of 4,244,000 barrels were produced at Pierce Junction. Since January 1 the field has averaged **7700 barrels per day.**

Exact figures on production and on operating costs of individual companies are not available, but it is believed that the Snowden-McSweeney and the Gulf Production Companies have broken about even in their operations on the east side. The Rio Bravo Oil Company has undoubtedly made a nice profit on its operations. The Marland Oil Company, Joe Bashara and Long et al have made some money and it is probable other individuals now operating will make money in the deeper horizons. Other operators have lost practically all that has been put into the area.

Pierce Junction is located within the outcrop of the Beaumont Clays which are Pleistocene in age. These clays were laid down after most of the movements had taken place around the salt domes. As these beds are composed of soft sands and clays, there are very few exposures throughout their outcrop to indicate structural conditions. At Pierce Junction there are none. Hence, the only indications of a dome to be noted at the surface in this area are the slight elevation that exists, which is probably due to slight movements in the dome since the deposition of the clays; gas seepages which were noted in the early history of developments, but which probably do not exist now due to the relieving of the pressure by wells which have been drilled; and mineralized waters in shallow wells.

From graphic logs it will be noted in the deep wells locate daround the edge of the dome that sands, clays and gravel pre-



SURFACE MAP OF PIERCE JUNCTION SALT DOME

dominate down to about 1300 feet on the west side, to about 1200 feet on the north and to about 1400 or more on the south. The upper 400 to 600 feet of this are assigned to the Beaumont clays while the balance is probably Lafayette in age. From about 1300 feet to about 4000 feet the formations are predominatingly pink and variegated colored gumbos and shales interbedded with sands and gravel. These formations are assigned to the Miocene. Below 4000 feet are gray and blue gumbos and sands which are Oligocene in age. In a few wells chocolate colored shales and sands, heaving in nature, representing the Jackson Eocene have been encountered below 4500 feet. The above depths to these formations are only approximate as wells close into the salt mass encounter the formations higher than those further out. In the Martin Drake well on the west side, which is extremely close to the salt, Oligocene was reported at about 3400 feet by the micropaleontologist of the Rio Bravo Oil Company.

On top of the dome Beaumont clays and Lafayette material probably make up most of the formations, but the gumbos reported in some of the wells suggest the presence of Miocene. Around the outer edges of the Miocene undoubtedly laps upon the dome, but we have no microscopic determinations on which to base definite statements.

There are apparently four different horizons which are productive of oil. The shallowest, which is found in wells nearest to the dome at 3500 to 3600 feet depths, and further out at 3800 to 3900 feet, is classified as Basal Miocene by Mrs. Applin and Miss Newman, micropaleontologists for the Rio Bravo Oil Company. The other horizons which are productive have been assigned to the Oligocene by these ladies. The middle of these three is apparently the most prolific. It is encountered at about 4240 feet in the Marland Oil Company Prudential Investment Company 3. The other two horizons have been encountered about 4100 feet and 4600 feet.

Most of the production in this field has come from the Basal Miocene beds. Only about 14 wells have been completed in the Oligocene on the west side. Ten of these have been producers while two were dry and two are gas wells. Wells have been drilled on the north and east sides which encountered Oligocene, but we do not have sufficient paleontological data to know whether any of the oil on the east side is being produced from it. The recently completed Anderson and Plumber well on the northeast is completed in the Oligocene. It made an initial production of about 600 barrels per day.

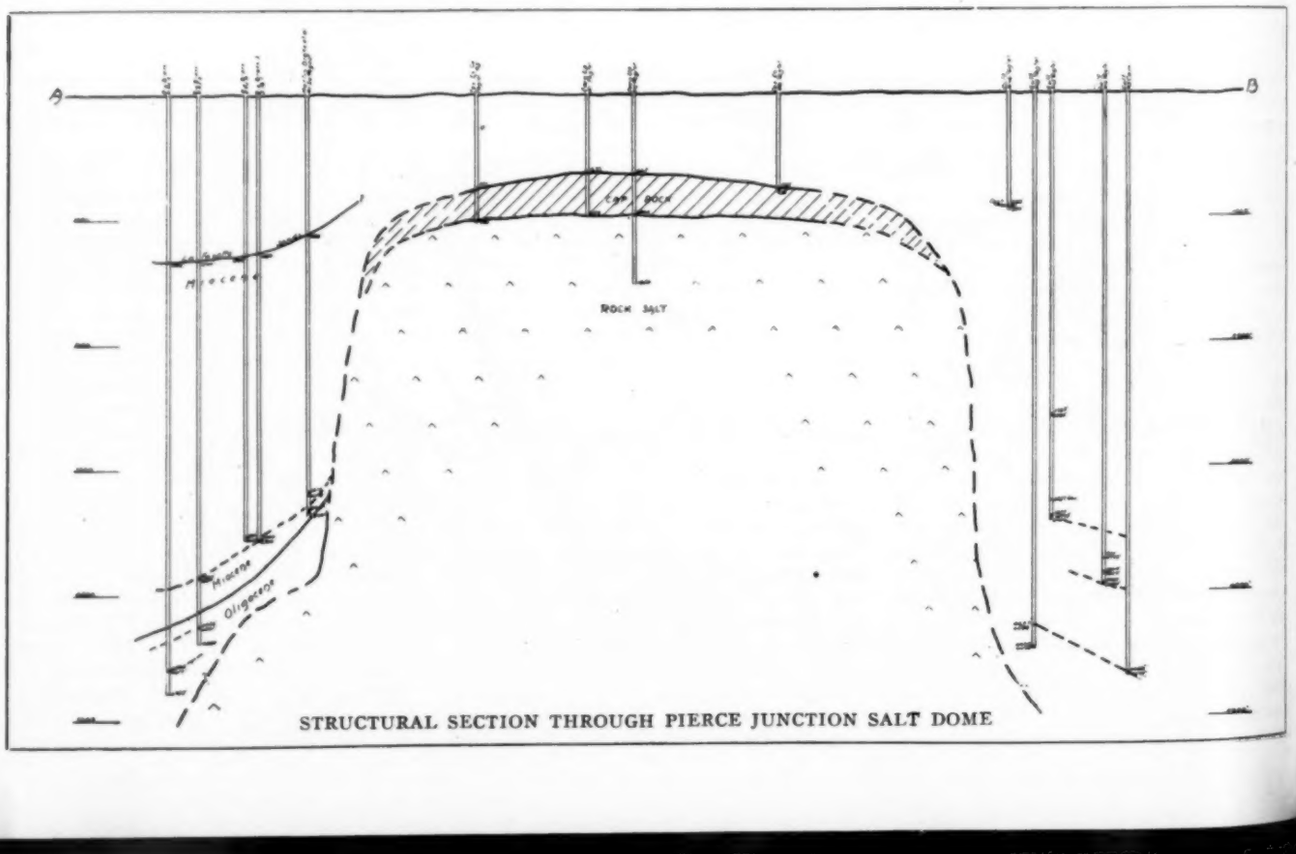
On the accompanying map we have drawn contours on top of the dome. Around the outer edges, these contours are based on depths at which salt was encountered. Near the center they are based on depths to the cap rock. Circles have been drawn around wells which have encountered either cap rock or salt and which furnished the control for the contours. From this map it will be seen that the outline of the dome is elliptical in shape with longer axis extending slightly west of north and east of south. It is relatively flat on top, above the 1000 foot contour. From the 1000 foot contour there is a rapid slope of the sides. On the east and west sides there is an apparent flattening out between the 3000 and 4000 foot contours, giving the impression of a bench or shelf. There is no control on the south to determine the presence of this bench effect, but it apparently does not exist on the north.

Cap rock or dolomitic limestone and gypsum lies over the salt where it has been drilled into at shallow depths. Near the center of the dome the cap rock is encountered at 665 feet depth and is 338 feet thick. It thins out toward the edges to where it is about 200 feet thick in the Texas Exploration Company's Taylor 3, Putnam's Whitehad 1 and Smith and Masterson's Taylor 1. At deep depths very little or no cap rock is found overlying the salt. Good shows of oil and gas have been gotten either from the cap rock or from sands just above the cap rock. It is possible that small wells may be gotten somewhere from this horizon, but nothing very big is expected.

The production occurs around the edge of this dome where the formations have been uplifted by the upward movement of the salt. Nearest the salt on the west side the formations have been tilted to an angle of about 30 degrees. This tilting apparently flattens out in the shallower formations and with distance from the dome. On the north correlations from well to well are too indefinite to be able to determine the degree of tilting, but the recently completed oil well of Anderson and Plumber on Block 9, Survey 51, proves the presence of favorable structural conditions for accumulation of oil.

On the east the eastward dip of the formations are indicated by graphic sections. It is apparently about 30 degrees. On the south there has not been sufficient development to determine the amount of tilting away from the salt. Such tilting, however, seems quite probable in that the same movements have effected it that have effected the other sides.

It is evident that the oil occurs in the upturned edges of the sands where they abut against the salt forming a seal for the oil. The faulting of the salt up against the edges of the sands have no doubt caused a drag, as well as an uplifted condition of the formations forming the reservoir.



STRUCTURAL SECTION THROUGH PIERCE JUNCTION SALT DOME

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision:

Month—	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Ave.	Gross
January, 1926	449,370	100,130	260,180	90,290	43,990	181,190	101,000	102,300	621,300	1,946,980	60,356,380
February	450,037	101,937	245,989	91,550	45,090	169,676	99,000	98,412	605,250	1,909,637	53,469,836
March	454,762	103,300	260,262	92,712	48,787	164,312	97,625	102,325	604,500	1,929,562	59,816,422
April	467,175	101,825	263,612	88,812	50,562	169,824	100,875	106,675	600,000	1,947,387	58,421,610
May	463,750	105,690	277,700	94,550	58,150	175,430	105,700	112,300	602,720	1,995,990	61,875,690
June	456,450	107,637	302,187	89,912	60,412	167,887	106,250	112,925	606,925	2,013,187	60,395,610
July	456,920	110,320	336,600	114,760	57,460	161,870	104,700	108,520	613,940	2,062,470	63,936,570
August	465,137	111,600	381,550	161,237	56,787	157,375	108,350	110,737	609,725	2,162,662	67,042,522
September	465,387	113,037	402,212	175,512	56,575	154,037	110,125	105,825	598,100	2,180,862	65,425,860
October	497,120	114,720	439,190	170,350	58,200	149,810	109,500	99,060	611,600	2,259,850	70,055,350
November	551,225	115,425	475,987	176,425	56,575	144,100	111,125	93,537	641,325	2,365,475	70,964,250
December	561,012	118,950	483,550	181,263	55,137	139,250	110,375	87,650	659,925	2,396,112	71,279,472
January 1927 . .	591,570	117,490	460,910	176,330	53,030	132,648	108,100	83,910	655,660	2,385,650	73,955,150
February.....	683,775	116,200	479,175	154,975	52,850	128,362	107,250	85,237	642,775	2,455,612	69,157,136
March.....	707,187	115,612	475,375	154,262	51,450	124,662	104,500	87,200	644,350	2,462,625	76,341,375
April.....	723,820	115,510	476,920	155,420	50,670	114,860	107,500	89,130	643,520	2,477,350	74,320,500
May.....	716,175	114,675	488,125	151,375	47,465	113,525	113,625	89,625	633,225	2,491,975	77,374,910
June	760,712	112,662	481,950	151,650	48,762	112,612	112,125	85,725	640,325	2,506,037	75,181,125
July	839,580	108,200	476,750	144,110	55,280	110,290	111,700	87,110	621,920	2,554,940	79,203,140
August 6	877,400	105,800	476,200	140,700	57,500	106,650	114,000	86,800	612,100	2,577,150	18,040,050
August 13	858,300	105,350	489,550	138,350	60,600	106,550	114,500	84,650	617,700	2,575,550	18,028,850
August 20	817,050	104,600	479,950	138,650	56,550	104,550	115,000	80,450	621,600	2,518,400	17,628,800
August 27	798,250	105,000	489,550	137,450	54,850	102,950	115,500	75,450	627,900	2,506,900	17,548,300
Increase	.....	400	9,600	.....	.....	.....	500	.....	6,300	.....	.....
Decrease	18,800	.....	.....	1,200	1,700	1,600	.....	5,000	.....	11,500	80,500

TEXAS

(Outside Gulf Coast)

PANHANDLE DICTRICT

	Aug 27	Aug. 20
Hutchinson County	80,350	78,450
Gray County	10,450	9,800
Carson County	9,550	9,950
Wheeler County	1,650	1,550
Others	200	100
Totals	102,200	99,850

NORTH TEXAS

Burkburnett	13,200	13,350
Electra	12,600	12,750
Iowa Park K-M-A	2,500	2,550
Wilbarger	12,550	12,800
Archer County	27,000	27,150
Clay County (Petrolia)	600	600
Baylor County	100	100
Montague and Cooke Counties	16,500	16,750
Totals	85,050	86,050

WEST CENTRAL TEXAS

Stephens County	8,550	8,750
Eastland-Desdemona	8,750	8,500
Brown County	24,000	24,500
Coleman County	1,000	1,000
Callahan County	3,250	3,350
Shackelford County	6,950	7,250
Young County	9,950	10,200
Throckmorton County	1,400	1,550
Jack County	750	750
Palo Pinto County	800	800
Others	600	650
Totals	66,000	67,300

WEST TEXAS

Jones County	1,700	1,800
Mitchell-Scurry Counties	3,900	3,800
Howard County	3,200	3,100
Reagan County	25,150	25,200
Crane-Upton Counties 127,550		118,800
Crockett County	1,450	1,350
Pecos County	6,000	5,100
Winkler County	3,850	2,750
Ector County	1,400	1,200
Totals 174,200		163,100

EAST CENTRAL TEXAS

Mexia	9,600	9,650
Currie	700	500
Richland	900	1,000
Wortham	2,850	3,000
Corsicana-Powell	14,950	14,950
Nigger Creek	2,800	2,950
Totals	31,800	32,050

SOUTHWEST TEXAS

Luling	16,950	17,200
Lytton Springs	1,900	2,100
Somerset	900	900
Laredo District	10,000	10,850
Piedras Pintas	50	50
Others	500	500
Totals	30,300	31,600
Tex. (outside Gulf Coast).....	489,550	479,950

GULF COAST

West Columbia	8,950	9,100
Damon Mound	900	900
Big Creek	3,000	2,800
Boling	1,600	1,700
Blue Ridge	2,750	2,850
Pierce Junction	8,100	5,900
Humble	2,500	2,900
Goose Creek	8,300	8,200
South Liberty	2,800	2,800
Hull	14,850	15,250
Saratoga	1,200	1,150
Batson	1,300	1,350
Sour Lake	4,200	4,250
Spindle Top	53,000	55,100
Orange County	5,500	5,200
Others	4,150	4,500
Totals	123,100	123,950
Texas Total 612,650		603,900

OKLAHOMA

North Braman	3,250	3,400
South Braman	2,350	2,450
Blackwell	4,000	3,850
Hubbard	5,000	5,000
Thomas	4,300	4,450
Tonkawa	19,850	19,700
Garber	10,600	11,050
Burbank	37,900	38,450
Osage (outside Burbank)	31,250	31,300
Watchorn	1,800	1,800
Cushing	21,200	21,450
Yale Jennings	9,850	10,100
Davenport	3,000	2,900
Bristow Slick	25,150	25,500
North Okmulgee	16,350	16,550
Lyons Deaner	5,100	5,100
Stroud	1,200	1,250
Cromwell	12,300	12,350
Papoose	6,350	6,300
Wewoka	16,600	17,300
Seminole 281,400		278,800
Earlsboro 154,900		173,100
Duncan District	6,950	7,000
Graham	7,200	7,200
Fox	1,950	1,950
Healdton	15,000	15,000
Hewitt	9,700	9,700
Scholem Alechem	16,100	16,400
Others	67,650	67,650
Totals 798,250		817,050

CALIFORNIA

Santa Fe Springs	40,500	40,500
Long Beach	91,000	91,000
Huntington Beach	69,000	68,000
Torrance	21,500	21,500
Dominguez	15,500	15,500
Rosecrans	8,000	8,000
Inglewood	34,000	34,000
Midway-Sunset	86,000	86,000
Ventura Avenue	48,400	46,600
Seal Beach	59,000	55,500
Others 155,000		155,000
Totals 627,900		621,600

ARKANSAS

El Dorado	5,750	5,800
Smackover Light	10,300	10,450
Smackover Heavy	80,000	81,200
Stephens	1,250	1,300
Nevada	2,250	2,400
Lisbon	3,300	3,300
Others	100	100
Totals 102,950		104,550

KANSAS

	Aug 27	Aug. 20
Greenwood County	34,000	34,100
Florence-Covert	1,600	1,600
Peabody-Ebling	3,850	3,800
Eldorado-Towanda	14,000	13,900
Augusta-Fox Bush	4,250	4,350
Rainbow Bend	2,200	2,250
Russell	2,450	2,350
Churchill 13,650		14,450
Others	29,000	27,800
Totals 105,000		104,600

NORTH LOUISIANA

Homer	4,750	4,750
Haynesville	7,200	7,200
Caddo Light	15,950	17,800
Caddo Heavy	5,100	5,150
DeSoto-Red River	4,050	4,050
Elm Grove	650	650
Bellevue	1,200	1,150
Cotton Valley	5,400	5,400
Urania	9,800	9,600
Pleasant Hill	750	800
Totals North Louisiana	54,850	56,550

LOUISIANA GULF COAST

Vinton	4,900	4,850
Lockport	5,300	5,550
Evangeline	1,050	1,000
Edgerly	2,200	2,300
Others	900	1,000
Total Louisiana Gulf Coast .	14,350	14,700
Louisiana Total	69,200	71,250

MOUNTAIN STATES

WYOMING

Salt Creek	33,000	35,300
Grass Creek	2,650	2,650
Elk Basin	1,000	1,050
Big Muddy	3,050	3,000
Lost Soldier	2,750	2,600
Rock River	2,750	2,550
Lance Creek	450	600
Teapot Dome	750	1,100
Others	5,250	6,200
Totals	51,650	54,050

MONTANA

Cat Creek	2,100	2,100
Sunburst	12,000	14,500
Others	250	250
Totals	14,350	16,850

COLORADO

Moffats (Craig)	1,650	1,700
Fort Collins	2,850	3,150
Florence	1,050	300
Others	1,600	1,700
Totals	7,150	6,850

NEW MEXICO

Table Mesa	200	300
Artesia	1,450	1,300
Hogback	350	350
Rattlesnake	300	750
Totals	2,300	2,700
Totals Mountain States	75,450	80,450

EASTERN STATES

(Including Ill., Ind., Ohio, W. Va., Pa., Ky., and N. Y.) ...115,500		115,000

PRODUCTION SUMMARY

East of Rockies 1,803,550		1,816,350
United States 2,506,900		2,518,400

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
BREA-OLINDA—		
Fullerton Oil Co., 22	375	5200
HUNTINGTON BEACH—		
E. E. Combs, No. 1	150	3944
Hauser Pet. Co., No. 3	100	2115
R. L. Ibetson No. 15	185	4350
Globe Lease & Royalty Co. No. 2	80	4347
SEAL BEACH—		
George Getty No. 13	50	4990
Maryland, McGrath & Selover 9	1900	5323
Bixby 11	100	4440
Union Pet. & Drlg. Co., McCaslin 1	150	5053
Waklin & Peacock, Alamitos 1	1250	5035

EASTERN STATES

PENNSYLVANIA

BRADFORD FIELD—		
South Penn Oil Co., Middaugh 55	2	....
Middaugh 56	2	....
Dent 113	2	....
Keating 42	2	....
Keating 43	2	....
Davis	2	....
Brooks 18	2	....
Hooker 20	2	....
Cotton 61	2	....
Hodge-Rew 08	2	....
Smith 149	2	....
Zimmer 03	2	....
Culbertson 64	2	....
Forest Pet. Corp., Drake 1-G28	2	....
Drake 1-G74	2	....
Drake 1-H20	3	....
Drake 1-H31	4	....
Forest Oil Corp., Fee 2	7	....
Hazlewood Oil Co., blk 25, tr 18	2	....
Blk 22, tr 42	2	....
Fitzgibbons & Wilson, Fee 15	3	....
Wright & Ralph, Bingham 374, tr 2	2	....
C. E. Potter, Irvine 7	3	....
F. M. Boocks, Boocks 3	4	....
T. B. Wilson, Borden 17	3	....
Skaggs Bros., Skaggs 3	3	....
Hope Oil Co., Richardson 4	3	....
Pollock & Co., Riddle 4	3	....
McDowell & Andrus, Bingham 296, tr 115	2	....
Bingham 296, tr 114	2	....
T. H. Kennedy, Bingham 489, tr 149	2	....
Bingham 489, tr 150	3	....
Chamberlain 5	3	....
C. B. Kervin, Baldwin 5	2	....
J. H. Gibson, Boyd 2	2	....
Korner & Co., Chamberlain 2	2	....
W. J. Gealy, Gealy 1	2	....
Piper & Lloyd, Ekas 38	2	....
D. W. Daly, Bingham 369, tr 66	2	....
Bingham 389, tr 148	3	....
Lane & Co., Bingham 371, tr 75	2	....
CALRION COUNTY—		
Dempseytown Gas Co., Dovenspike 2	*	....
Elder & Hall, Bowser 1	*	....
Switzer & Co., Switzer 5	2	....
Fogle Oil Co., Exley-Berlin 2	2	....
VENANGO COUNTY—		
J. L. Eakin, Kenderall 54	2	....
Lambertson Bros., Wilson 19	2	....
S. B. Dickson & Co., Reid 15	2	....
John Diamond, Roe 8	2	....
United Natural Gas Co., Nupher 3812	¶1	....
CENTER-MIDDLE FIELD—		
Pequignot & Co., Grandin 1	*	....
Keller & Co., Foster 8	2	....
ALLEGHENY COUNTY—		
Lick O. & G. Co., Kalls Hrs 1	5	....

WEST VIRGINIA

ROANE COUNTY—		
United Fuel Gas Co., Taylor 1	¶1½	....
Gross 2	¶½	....
Pierson 1	¼	....
Heck Oil Co., Conley 10	15	....
South Penn Oil Co., W. H. Smith 1	*	....
WOOD COUNTY—		
Parsons & Sweeney, Walker 16	*	....
D. B. & J. W. Reed, Reed 1	*	....
Alprey Oil Co., Parry 6	3	....

SUMMARIZED REVIEW OF FIELD RESULTS

State—	Completions This Week	Completions Last Week	Producers This Week	Producers Last Week	Gas Wells This Week	Gas Wells Last Week	Failures This Week	Failures Last Week	Initial Production This Week	Initial Production Last Week
Arkansas	6	7	4	3	..	1	2	3	505	295
California	13	18	10	17	..	..	3	1	4,340	11,885
Colorado	..	..	..	..	..	..	..	..	....	....
Indiana	2	9	..	2	..	1	2	6	....	163
Illinois	3	6	..	1	..	..	3	5	....	80
Kansas	13	13	3	2	..	1	10	10	420	275
Kentucky	37	47	26	32	..	..	11	15	686	1,646
Louisiana	13	20	5	8	3	4	5	8	1,516	6,276
Michigan	6	4	6	3	..	..	..	1	100	38
Montana	..	..	..	..	..	..	..	..	....	....
New Mexico	..	..	..	..	..	..	..	..	....	....
New York	3	19	3	18	..	..	..	1	6	54
Ohio	56	26	26	12	22	5	8	9	246	376
Oklahoma	62	83	26	45	2	4	34	34	34,898	49,609
Pennsylvania	53	78	49	68	1	5	3	5	120	180
Tennessee	7	8	..	3	1	..	6	5	....	46
Texas	91	93	59	53	4	7	28	33	24,104	54,867
West Virginia	19	19	6	5	8	9	5	5	63	64
Wyoming	..	..	..	..	..	..	..	..	....	....
Totals	384	450	223	272	41	37	120	141	67,004	125,854
Increase this week	..	..	..	..	4	..	..	..	....	....
Decrease this week	66	..	49	..	..	..	21	..	58,850	....

NOTE—Following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million cubic feet of gas; abd—abandoned; bbls—barrels; b. s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in—inches; loc—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

Company, Well and Location	Initial Production Bbls.	Depth
RITCHIE COUNTY—		
Astron Oil Co., Strusburg 6	5	....
Ira D. Cox, Richards 2	5	....
CALHOUN COUNTY—		
Hope Construction & Ref. Co., Hardman 1	¶1	....
H. J. Simmons, Powell 1	5	....
PUTNAM COUNTY—		
Kirtley & Keller, Jones 2	¶1	....
Maddox 2	*	....
MINGO COUNTY—		
Old Colony O&G Co., Closterman 15	30	1615
LEWIS COUNTY—		
W. M. Smith & Co., Whalen 1	¶1¼	....
CABELL COUNTY—		
Aetna O. & G. Co., Davidson 3	¶½	....
WETZEL COUNTY—		
Carr Bros., Morgan 1	¶1½	....
PLEASANTS COUNTY—		
Ira Connolly, Heckel 1	*	....

KENTUCKY

OWSLEY COUNTY—		
Pet. Exploration Co., Brewer 1	200	650
Big Injun Oil Co., Brewer 3	250	656
MAGOFFIN COUNTY—		
O. Jenkins & Co., Adams 2	20	....
WAYNE COUNTY—		
John Dillon, Burnett 1	25	....
P. H. Kennedy & Co., Stinston 7	*	....
C. M. Work, Simpson Hrs 1 and 2	*	....
BARREN COUNTY—		
Hunt, Leach & Mitchell, Taylor 20	20	....
Taylor 21	20	....
Samson Oil Co., Johnson 2	12	....
W. L. Baird, Johnson 1	2	....
Esslinger Oil Co., Wright 1	3	....
Browning Oil Co., Browning 5	5	....
Bishop & Co., Bishop 2	3	....
Snyder, Smith & Co., Williams 1	2	....
A. W. Ziegler, Bunch 1	1	....
Lyons, Hartzel & Co., Gassaway 2	1	....
Gassaway Bros., Dausey 1	*	....
J. G. Esslinger, Card 1	*	....
T. L. Gorby, Foster 1	*	....
Hunt, Leach & Co., Jones 3	*	....
CUMBERLAND COUNTY—		
Hook & McComas, Riddle 2	12	....
Baird & Hickman, Elliott 2	2	....
Foster Mitchell, Wells 1	*	....
Thresher, Shouse & Co., Williams 1	*	....
ESTILL COUNTY—		
Wood Oil Co., Henry 4	3	....
Superior Oil Corp., West 11	2	....
Wise 12	2	....
Alexander 16	*	....

Company, Well and Location	Initial Production Bbls.	Depth
LEE COUNTY—		
Tipton & Tackett, Vanderpool 1	3	....
Harris-Spence Co., Darts & Short 1	2	....
OHIO COUNTY—		
White Plains O. & G. Co., Howard 2	42	455
Kentucky Oil Co., Chambers 2	15	....
WARREN COUNTY—		
Onsel-Hanrahan Oil Co., Davenport 7	2	1051
Thompson Oil Co., McLemore 6	12	1050
CLINTON COUNTY—		
McClintock, Reed & Co., Pierce Bros. 9	25	....
Sells O. & G. Co., Pierce 1	*	....
DAVIESS COUNTY—		
Leeper Oil Co., Veach 3	*	....

TENNESSEE

CLAY COUNTY—		
Cumberland Val'y O. Co., Langford 2	*	....
Chicago Pet. Synd., Poor Farm 1	*	....
Palmer Oil Corp., Red Boiling Springs 1	*	....
Leach & Co., Unknown 1	*	....
H. Z. Clark Oil Co., Neely 1	*	....
Livingstone Co., Dailey 1	*	....
MACON COUNTY—		
John McClurkin, Tucker 1	¶2	400

SOUTHEASTERN OHIO

CARROLL COUNTY—		
Leesville O. & G. Co., Tripp 1	5	1150
Tripp 2	*	1150
Tripp 3	5	1150
Tripp 4	8	1150
WASHINGTON COUNTY—		
Miracle Oil Co., Cline 1	5	....
O. S. Reckard & Co., Dana 14	10	....
E. A. Metcalf, Efferson 11	2	....
BELMONT COUNTY—		
Natural Gas Co. of West Virginia, Clark 1	¶¼	....
MORGAN COUNTY—		
Ohio Fuel Gas Co., Hummell 1	¶¼	....

CENTRAL OHIO

CUYAHOGA COUNTY—		
J. W. Cushing, Slamack 1	¶1¼	....
The Logan Gas Co., Hall 1	¶2¼	....
Dillon & McFrederick, Pack 1	¶1½	....
Daugherty & Daugherty, Austine 1	*	....
Arthur & Simpson, Dennison 1	¶¾	....
Wagner 1	¶3½	....
Huntington 1	*	....
Orechtel 1	¶1½	....
LICKING COUNTY—		
Wehrle Interests, Dodson 1	¶¼	2417
Vance 6	5	....

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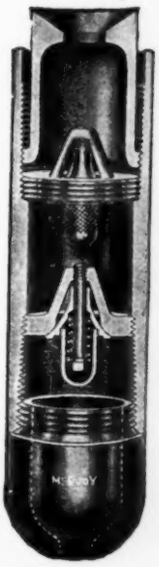
McEvoy Wireless Well Strainers

and

McEvoy Products

McEvoy Wireless Well Strainer

McEvoy Set Shoe Assembly



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Company, Well and Location	Initial Production Bbls.	Depth
Hope Construction & Ref. Co., Sommerville 1	25	....
Ohio Fuel Supply Co., Livingstone.	12	630
McClay & Co., Stricker 1	5	....
MEDINA COUNTY—		
Empire G. F. Co., Puchhas 4	¶1¼	....
Ganyard 1	*	....
E. R. Edson & Son Co., Wertz 23	1	385
Wertz 24	1	385
Ohio Fuel Gas Co., Boje 2	¶¼	....
HOLMES COUNTY—		
East Ohio Gas Co., Hastings 4	8	....
Empire G. & F. Co., Degler Hrs 1	20	....
The Logan Gas Co., Siddle 1	*	....
HOCKING COUNTY—		
The Pure Oil Co., Francis 1	5	....
Griffin Producing Co., O'Hara 1	*	2880
Theadora O. & G. Co., B. Mills 1	5	....
KNOX COUNTY—		
Margaret Oil Co., Davidson 7	6	....
Ohio Fuel Gas Co., Staatz 1	¶1	....
Spring 1	¶¾	....
ATHENS COUNTY—		
Wehrle Interests, Gold 1	¶1	....
Mulgan 1	¶1	....
Gross & Frebault Co., Irwin 4	¶1	....
COSHOCTON COUNTY—		
The Logan Gas Co., McMillan 1	20	3124
Ohio Fuel Gas Co., Miller 1	10	....
MEIGS COUNTY—		
Charles H. Vaughn, Wessel 2	3	1820
Ohio Fuel Supply Co., Peoples 1	¶¼	....
LORAIN COUNTY—		
Ohio Fuel Gas Co., Weitzel 1	¶¾	2980
East Ohio Gas Co., Hudson 1	¶¼	....
WAYNE COUNTY—		
Ohio Fuel Gas Co., Grady 1	¶1	....
John Arthur, Shaffer 2	*	....
ASHLAND COUNTY—		
Ohio Fuel Gas Co., Stitzlein 1	*	....
Lucas 1	¶1½	....
NORTHWESTERN OHIO		
WOOD COUNTY—		
Oko O. & G. Co., DeVerna 13	8	1287
Hoffman & Co., Keller 1	4	1339
DARKE COUNTY—		
Cole O. & G. Co., Disher 17	30	1258
HANCOCK COUNTY—		
Porter & Co., Haley 26	25	1387
AUGLAIZE COUNTY—		
Wesley Sprague & Co., Whetstone 1	10	1225
MERCER COUNTY—		
T. G. Ayres, Rowland 3	8	1157
WYANDOT COUNTY—		
Farmers Oil Co., Kear 1	¶¼	1407
OTTAWA COUNTY—		
Elmore O. & G. Co., Netcher 9	*	1300
INDIANA		
PIKE COUNTY—		
The Ohio Oil Co., Gladish 3	*	....
Coffman 7	*	1327
ILLINOIS		
CLARK COUNTY—		
Stewart & Co., Bailey 6	*	600
Bailey 5	*	645
EDGAR COUNTY—		
The Ohio Oil Co., Thompson 1	*	1925
MICHIGAN		
SAGINAW COUNTY—		
Saginaw Prospecting Co., Eddy 3	20	1823
Deindorfer 4	15	1830
Schabenoski 1	15	1837
Fordney Pet. Co., Community 1	15	....
Dittmar & Raths 2	20	1823
The Sun Oil Co., Stelzreide 5	15	1851
KANSAS		
BUTLER COUNTY—		
Empire G. & F., Lennerson 1, nec sw 34-27-5e	35	2723
Shawver & Sutter, Mathews 1, nec nw nw 26-28-6e	*	2818
CHASE COUNTY—		
Barnsdall, Stetler 2, sec ne 25-21-9e.	*	2364
COWLEY COUNTY—		
Trees Oil., Frelinger 1, sec ne ne 36-31-3e	*	3389
DONIPHAN COUNTY—		
Valley Pet., Blank 1, sec nw 2-1-19e.	*	2315
ELK COUNTY—		
Elmwood et al, Osborn 1, nwc se ne 15-30-10e	*	2055
GREENWOOD COUNTY—		
Empire G. & F., Ott 1, nec nw 25-22-12e	360	1716
Plains Pet., Techgraber 3, nwc sw ne 11-25-8e	25	2435
Buck et al, Mosby 1, nec sw sw 34-23-8e	*	2651
Leeward Pet. et al, Hill 3, swc se ne	*	....
Edwards et al, Edwards 1, nwc 23-24-10e	*	3050
RENO COUNTY—		
Mississippi Valley Oil., Griffen 1, c se 19-22-7w	*	4001
Streeter & Stearns, Lilak 1, c nw se		
OKLAHOMA		
CREEK COUNTY—		
Atlantic Oil Prod., J. Bear 3, nwc se nw 16-14-10e	90	3224
O. M. Irelan, Farley 2, nwc ne se 13-17-10e	60	2456
Foos et al, Townlot 1, sec ne se ne 6-18-12	25	2194
Gled Oil., West 1, nec sw nw 17-18-9e	40	3190
Enfisco Oil Corp., Thompson 3, c s l se nw 13-15-10e	*	3121
M. P. Evans, Collins 1, nec sw 7-15-10e	*	3446
O. M. Irelan, Griswell 1, nec 11-17-10e	*	2496
Sherry et al, Berryhill 1, swc nw se 4-18-10e	*	2745
J. B. Grieves, Porter 1, sec 12-19-8e	*	2452
Sidwell Drlg., Allen 1, sec sw nw 11-19-7e	*	3010
BECKHAM COUNTY—		
J. S. Nelson, Adams 1, swc ne 35-9n-25w	*	2550
GRADY COUNTY—		
Carter, Carter-Kerans 1, sw ne se 21-3n-5w	30	1530
Carter, Woods 1, se ne ne 17-3n-5w	180	2283
Walford 5, swc se 16-3n-5w	200	1810
J. B. Nichols, Ridgeway 1, nw ne ne 35-4n-8w	*	3085
HUGHES COUNTY—		
Josey Oil., Dere 1, se nw ne 22-9-9e	¶25	3377
S J. McGee, Yarnel et al, Riley 1, nws se 9-8-10e	*	3220
MUSKOGEE COUNTY—		
J. M. Gillette, Barnett 1, c e l ne se 19-16-15e	*	1389
Jolly Ogg Oil., A. Rector 1, sec ne 18-15-17e	*	2180
W. H. Trapp et al, Scott 1, swc se sw 11-14-18e	*	....
OKMULGEE COUNTY—		
Lambert O. & G., F. B. Aultman 3, sw se nw 29-13-15e	*	870
OSAGE COUNTY—		
Zola Oil., 46, swc se ne se 16-25-12e	3	1716
Winona Oil., 1, nec 18-29-11e.	8	1076
Devonian Oil., 1, nec 33-21-10e	100	1500
Breene, Markham et al 1, nec se 22-21-10	15	1580
Texas, 1, swc se 27-27-6e	*	3430
PONTOTOC COUNTY—		
Homa Okla Oil., Harjo 1, ne se se 17-5n-8e	600	2456
Smith Gilmer 1, swc 16-5n-8e	*	2558
F. Smith, Lloyd 1, nw ne nw 28-3n-4e	*	1004
PAWNEE COUNTY—		
J. H. Turner et al, F. Weeks 1, nec se 30-20-9e	*	2770
POTTAWATOMIE COUNTY—		
Indep. O. & G. & Margay Oil, Odell 4, nw sw se 4-9-5	7335	4295
Barnsdall, Gibson 6, ne nw ne 9-9-5	4880	4264
Mid Continent Pet., McKinley 4, ne nw sw 9-9-5	6370	4396
Phillips, Gram 7, se nw se 9-9-5	1660	4326
Tidal, Watkins 3, nwc 9-9-5	4315	4306
Sinclair, Foreman 1, se sw ne 18-9-5	32	4157
Magnolia, Cherry 1, sec sw 13-7-4	¶5	3650
Lewis 1, se ne se 15-7-4	265	3734
Barnsdall, Holey 3, nwc se 4-9-5	*	....
Gypsy, Doebling 2, sec nw 4-9-5	*	4560
SEMINOLE COUNTY—		
Roxana, Anderson 1, nw ne sw 15-9-5	3850	4328
Texas, Strothers 2, sw nw nw 2-8-6	135	4314
Atlantic Oil Prod., C. Jones 1, se sw se 9-8-6	3100	4205
Tidal, Harjoche 4, sw nw sw 10-8-6	480	4006
Barnsdall, Murrow 4, se sw sw 11-8-6	720	4139
Pure, Reed 14, se ne sw 14-8-6	10	4408
Pure, Strothers D3, nw ne nw 14-8-6	425	4156
Barnsdall, R. Cudjo 1, sw nw sw 3-9-5	*	4475
Gypsy, Wisener 1, nwc nw 13-9-5	*	4363
I. T. I. O., Litka 1, nec 9-7-6	*	4537
Empire G. & F., Lacey 9, c nw sw 14-8-6	*	2632
Mid-Continent Pet. Corp., Hutka 3, nw se nw 24-8-6	*	....
Carter, Harjoche 7, se nw nw 14-8-6	*	4290
Pure, Reed 10, sec nw 14-8-6	*	4373
Carter, McCeissy 2, se ne ne 21-8-6	*	4315
Mid-Continent, Hutka 2, sw ne nw 24-8-6	*	4360
Jarvis & Holmes, Amma 1, se ne ne 11-9-7	*	4585
Magnolia, Markwell 1, ne nw ne 28-9-7	*	4405
Kingwood Oil., Harjo 6, se ne se 22-9-6	*	4253
T. B. Slick, Born 2, nw sw se 35-9-6	*	4630
STEPHENS COUNTY—		
Magnolia, James Goza 1, sw ne nw 1-2n-5w	*	4170
WAGONER COUNTY—		
A. Tillman et al, F. M. Davis 3, swc se sw 11-16-16e	*	812
ARKANSAS		
NEVADA COUNTY—		
J. J. O'Brien, Moss b-2, 1-14-21	225	1165
OUACHITA COUNTY—		
Exchange Oil Co., Berg 8, 4-16-15	60	2356
UNION COUNTY—		
E. M. Jones, Alphin 2, 4-16-15	175	2351
Stewart et al, Murphy 7, 9-16-15	45	2407
LOUISIANA		
CADDO PARISH—		
Gilliam Synd., Taylor 1, 17-21-14	4	914
Standard, Stiles 182, 33-21-16	30	1838
Woodley Pet. Co., Knight B-1, 11-15-12	¶2	1936
LA SALLE PARISH—		
Natural G. & F. Corp., Urania M-10, 19-10-2e	80	1579
RICHLAND PARISH—		
Gulf, Wayne L. & T. Co. 1, 36-17-5e	¶2	2450
SABINE PARISH—		
Arkansas Fuel Oil Co., Logan 9, 33-10-12	37	3385
WEBSTER PARISH—		
Ohio Oil Co., Bank of Cotton Valley 4, 22-21-10	¶8	4395
EAST TEXAS COMPS		
HARRISON COUNTY—		
C. H. Lyons, Bryson 2, T. D. Wilson sur	¶15	1914
PANOLA COUNTY—		
Magnolia, Lewis 5, Jas. Johnson sur	5	2000
SOUTH LOUISIANA		
LOCKPORT—		
Vacuum-Gulf, Miller 9	1365	4475
TEXAS		
GULF COAST		
SPINDLE TOP—		
Gulf, Oakwood Realty Co. 11	2522	4850
Gladys 224	85	650
Magnolia, Fee 6	*	5200
Sun Oil Co., McLean 15	1400	5600
BATSON—		
J. R. Everett, King 1	*	1450
GOOSE CREEK—		
Gulf, Hoffman-Gaillard 11	200	2750
BARBER'S HILL—		
Humble, Kirby 1	*	5795
Mills Bennet Prod. Co. & Moody Corp.	500	3356
SOUR LAKE—		
Humble, Jackson 3	20	2150
HULL—		
Republic Prod. Co., Dolbear 100	500	2500
Mecom Oil Co., Taylor 1	*	1860
Big Dome Interests, Palmer 3	*	1570
WEST COLUMBIA—		
The Texas Co., Arnold 23	*	4400

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Company, Well and Location	Initial Production Bbls.	Depth
PIERCE JUNCTION—		
J. F. Bashara, Bashara Fee B-1	1275	4600
Rio Bravo Oil Co., Bender 5	450	3400
Navarro Oil Co., Cain 2	2000	4880
ORANGE—		
Brownie-Babbett Oil Co., McLean 5	250	3580
HIGH ISLAND—		
McLean Oil Co., Cade 11	30	3300
NORTH TEXAS		
ARCHER COUNTY—		
Kruger & Staley, Turbeville 5	40	1512
BURKBURNETT—		
The Ascot Co., Tyson 1-A	*	2258
COOKE COUNTY—		
Kewnee O. & G. Co., Timms 2	120	1409
Scientific Oil Corp., Allen 1	*	2136
Sowell Bros. et al, Schmitz 1	50	1697
The Texas Co., Dennis 4	530	1304
DENTON COUNTY—		
Big Indian O. & D. Co., Forester 1	*	2502
Rondeau et al, J. M. Owens 1	*	2005
ELECTRA—		
C. P. Sheldon et al, Barton 1	*	1902
The Texas Co., Honaker 64	7	1040
K-M-A AND IOWA PARK—		
Wilson Drilling Co. et al, K. & K. 4	30	1819
MONTAGUE COUNTY—		
Bridwell-Heydrick Oil Co., McGaughey 1	30	1152
SOUTH VERNON DISTRICT—		
Humble, Castleberry 1-A	45	1540
Chas. Verschoyle-Vaughan et al, Ancell 1	*	1825
THROCKMORTON COUNTY—		
Red Bank Oil Co., J. H. Cole 2	¶5-215	4300
YOUNG COUNTY—		
E. S. Carey et al, Boley 1	*	1200
Rose et al, Keith 1	*	811
The Texas Co., Deitrich 1	*	1276
CENTRAL WEST TEXAS		
BROWN COUNTY—		
Alford Oil Co., Leslie 1	20	1346
Bowers et al, Mauldin 1	*	1405
Charter Oil Co., Byler 3	105	1335
Cranfill-Reynolds & Sun Oil Co., Smith 2	325	1336
Smith 3	350	1345
Prairie, Gafford 3-B	15	1272
Roxana, M. L. Smith 2	675	1345
Shoup Jr. et al, Byler 31	10	1300
Sinclair, Shore 8	10	2553
The Texas Co., Hickman 21	*	1445
Wentz Oil Corp., Shore 30	30	1341
Shore 31	35	1344
CALLAHAN COUNTY—		
Mortimer et al, Brown 1	*	803
EASTLAND COUNTY—		
Adamason & Bearman, Rosenquest 2	100	1483
Chestnut & Smith Corp., Spencer 1	*	3458
Panhandle Ref. Co., Hightower 3	30	1192
The Texas Co., Hightower 17	30	1202
SHACKELFORD COUNTY—		
Wentz Oil Corp., Reynolds 11	30	1287
STEPHENS COUNTY—		
Hoffman et al, Ledbetter 1	*	2294
WEST TEXAS		
CRANE COUNTY—		
Eastland Oil Co. et al, University 3	1350	2947
Gulf, J. T. McElroy 31, shot	525	2873
J. T. McElroy 34, shot	140	2912
Landreth Prod. Corp., State-Strip 12, shot	150	3000
State-Strip 13, shot	160	3003
Pecos Oil Co., University 4, shot	295	3005
Simms & Atlantic, University 5-D, shot	3000	2951
The Texas Co., University-Beasley 1, shot	80	2991
Tidal Oil Co. et al, University 2-I, shot twice	1085	2906
University 1-G, shot twice	140	2936
UPTON COUNTY—		
Gulf, Lane 4	1000	1960
Lane 6	600	2003
The Texas Co., J. M. Perry 3	910	1973
WINKLER COUNTY—		
Southern Crude Oil Pur. Co., Hendricks 1-A, (sec 44)	1085	3077

Salt Water Encroachment Discourages Drilling to Trinity Sand in Pine Island District

Shreveport, La.—The Trinity formation in the Pine Island field of Caddo Parish yielded another well of the gusher type last week when Benedum and Trees' Bashara 1, section 23-21-15, was bailed in from 3660 feet, making at the rate of approximately 1500 barrels of oil per day. Production is accompanied by very little salt water and about 15 million cubic feet of gas. The initial production of this well ranked second to that of the Haynes Brothers' Murray well, the discovery well of the deep producing Trinity sand, completed on July 3 as a 16,000 abrrel gusher.

The rapid rate at which all Trinity sand wells completed in the field have declined in initial production has somewhat dampened the ardor of the operators who are now endeavoring to establish commercial Trinity sand wells in the district. The early encroachment of salt water upon the oil producing sand has also served to check the drilling program which is now in progress. There have eben a total of 11 Trinity sand wells completed in the Pine Island field, all of which have registered a combined initial production of approximately 20,000 barrels. Slightly more than seven weeks since the first well was brought in, however, the total output of all wells is about 5000 barrels daily. Accompanying this production is thousands of barrels of salt water. The Haynes Brother's Murray well is now producing approximately 500 barrels of oil and 4000 barrels of salt water. This same company's Spell 1, in section 15-21-15, on an adjoining lease, was completed last week flowing at the rate of better than 500 barrels daily, while Murray 2, in the same section as Murray 1, blew in as a 10 million foot gas well from 3572 feet, while in the process of being drilled in. It later bridged over and arrangements were made to drill it deeper.

The Slygo Syndicate's Jeter 1, section 23-17-12, Bossier Parish, the first Trinity sand producer in Bossier Parish, has been tied into a gas separator and allowed to flow free and unhampered into the stock tanks, being rated as a 25 barrel oil well, but also making two million feet of gas a day. The oil production tests 41.6 gravity and is free from any sediment. This well is the only oil producing Trinity well in North Louisiana, outside of the Pine Island field. Several Trinity formation gas wells have been completed in the Cotton Valley field, in Webster Parish, but none of these show any sign of being productive of oil. This well is attracting considerable attention and it is thought that it will eventually result in the commencement of several Trinity sand wells in the Sligo vicinity, situated at the northern apex of the Elm Grove gas field.

Aside from the activity in Nevada County, Arkansas seems to have dropped out of the spotlight in so far as new wells are concerned. The recent extension of the Nevada County proven area into Ouachita County may be the reason for the revival of activity in this section. However, whatever the cause, it is the scene of a miniature boom; and may shortly be the cause of a flurry in Arkansas oil circles. J. J. O'Brien seems to be taking the lead in new drilling, a total of six permits having been issued to him during the past week.

Two and possibly three interesting tests are now under way in Union County, northeast of El Dorado, in the territory surrounding the Ohio Oil Company's Crain 1, recently completed as a 50 barrel pumper in an entirely new producing horizon. The Owenwood Oil Corporation has reached an interesting depth in their Goode 1, section 31-16-13, and is now coring at around 2930 feet. The Magnolia Petroleum Company has resumed drilling Carroll 1, section 1-17-14, the same section as the one in which the Ohio's Crain well is located, and is now drilling below 2300 feet. The Ohio is also drilling below surface casing in Crain 2, on the same lease as Crain 1.

The completion of a 60 barrel well in Marion County, Texas, south and west of the old Caddo field, may have a tendency to revive activity in this section, after a lapse of several months, following the failure of the last attempt to extend production of the old Caddo field in this direction. The completion of J. D. Lynch's Stiles 2, in the N. Gupton survey, flownig at the rate of 60 barrels of oil, from 2375 feet, came as a distinct surprise to all, although it is typical of this territory, similar wells having been completed previous to this one. Considerable drilling was done in this area recently in an effort to establish production in this direction.

Company, Well and Location	Initial Production Bbls.	Depth
TEXAS PANHANDLE		
CARSON COUNTY—		
Marland, Burnett 1-J	¶8½	3727
GRAY COUNTY—		
Roxana, Worley 3	350	3090
HUTCHINSON COUNTY—		
Minnehoma O. & G. Co. & Kistler, Johnson 4, shot twice	150	3010
Mountain States Oil Co., Haile 1	45	3039
Oil Operators Trust, Sanford 1	¶70	3010
Prairie & Phillips Pet. Co., Johnson 31-A, shot	25	3027
Johnson 48-A	50	2961
Prairie O. & G., Sanford 1	50	3009
Pure Oil Co., Johnson 6-B, shot	675	2908
Rock Creek Oil Co., Johnson 1	20	2855
MOORE COUNTY—		
Skelly, Armstrong-Byrd 1	150	3213
WHEELER COUNTY—		
J. J. Rock et al, T. C. Jones 1	¶20	1820

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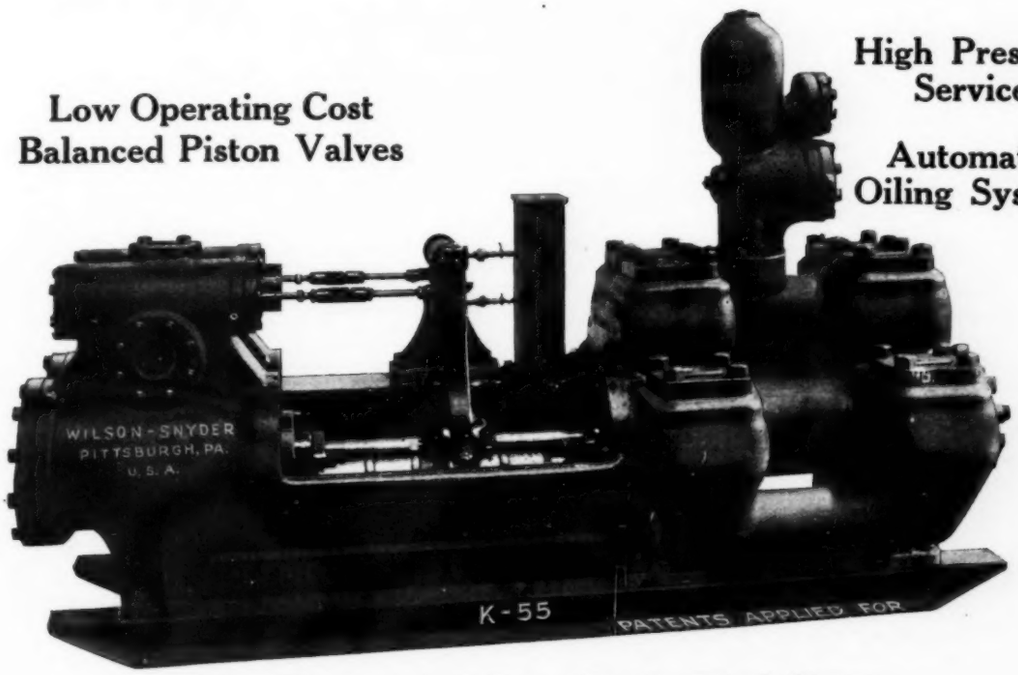

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PERMITS GRANTED FOR NEW WELLS

WEEKLY COMPARISON OF NEW WELLS

Following is a condensed table giving a comparison of permits or locations made for new wells during the past year in Kansas, Oklahoma, Arkansas, Louisiana, Texas, California and the Mountain States:

	Week Ending Aug. 26	Previous Week	Total This Month	Total This Year	This Week Last Year	This Month 1926	Total Same Date 1926	Year Total 1926
Arkansas	4	4	8	249	10	65	848	910
California	15	15	30	893	34	103	997	1,293
Louisiana	12	13	25	471	19	93	902	1,318
Kansas	12	20	32	677	93	184	1,385	1,745
Oklahoma	61	47	108	2,806	28	331	3,767	5,165
Texas	138	143	281	6,515	273	1,073	8,969	12,158
Mt. States	..	..	..	340	20	106	140	....
Total	242	242	484	11,951	477	1,955	17,098	*22,589

* Does not include Mountain States.

KANSAS

BUTLER COUNTY — Empire Gas & Fuel, Hutchinson CW1, sec nw 34-27-5e. Patton et al, Stern 1, swc 27-27-6e.

CHASE COUNTY—Phillips, Cornish 1, c nw se 36-18-6e.

GREENWOOD COUNTY—Polhamus et al, Townlot 3, swc se sw 35-25-10e. Snalley & Bement Oil Corp., Snyder 1, nec se nw 7-25-11e. Rogers et al, Townlot 3, nwc ne nw 2-26-10e.

GRAHAM COUNTY—Gulf Coast O. & G. St. John 1, swc nw se 27-8-25w.

McPHERSON COUNTY—Polar Oil., Gray 1, c nw 20-20-3w.

SUMNER COUNTY—Roxana, Mason 5, nwc se nw 25-31-2e. Pickard et al, Oxford 1, c lot 11, B 35, Oxford townsite. Ramsey & Fine, Townlot 1, lot 15, blk 24, Oxford townsite 11-32-2e. Roxana, Community 2, 113, b 39, Oxford Townsite, 14-32-2e.

OKLAHOMA

CARTER COUNTY—Magnolia, F. M. Gaberial 1, nwc sw 23-1s-3w. Humble, D. W. Ratliff 2, se nw nw 29-1s-3w.

CREEK COUNTY—Skelly, L. Bruner 1, swc se sw 10-25-8e. Gled Oil, Ross 8, swc se nw 13-10-8e. Hemlock Oil, Tate 1, c n l sw sw 35-18-10e. Dixie Oil, Goat 2, c s l sw ne 31-18-11e. O. M. Irelan, nwc se ne 13-17-10e. Pontiac Oil et al, Fulsom 8, nec nw sw 13-17-10e; Folsom 9, c e l sw sw 13-17-10e. Ted Ray Oil., Brink 7, c w l se sw 14-17-10e.

GRADY COUNTY—Meridian Gas., A. J. Woods 2, nwc ne nw 2-4n-8w. Oklahoma Nat. Gas., Dryden 2, swc nw 2-4n-8w. Magnolia, G. A. Ramsey 1, c nw ne 10-4n-8w. Marland, Burke 4, sw nw sw 16-3n-5w; Burke 1, nec se 17-3n-5w.

MUSKOGEE COUNTY — Earnest Price, Woodall 2, c w l sw sw 20-15-16e. J. Henigman et al, Francis 1, c s l nw se 1-14-18e. C. M. Bradley, Crittenden 6, sec nw nw sw 5-14-19e; F. A. Reed 1, nec sw sw 7-14-19e. W. R. Sommerville, Craver 1, nec se 4-13-19e.

OKFUSKEE COUNTY—Champlin Oil & Ref., Jacobs 7, sw se se 15-11-11e. F. A. Havel, Likowske 1-A, nec se sw 23-11-11e.

OKMULGEE COUNTY—E. B. Grubbs et al, Scott 1, nwc sw 12-15-14e. Sheldon Oil et al, Skelton 1, c sw se 15-13-12e. E. J. Lambert, M. McCombs 2, c w½ sw ne 30-13-15. Eagle Pitcher Lead, Diamond 1, nec nw sw 6-12-12.

OSAGE COUNTY—I. T. I. O., 372, nec nw se 22-27-11e; 300, sec nw 2-25-11. McCuen & Wormser, 7, sec ne se nw 15-24-8e. I. T. I. O., 371, sw se se 20-23-8e.

PONTOTOC COUNTY—Louisiana Oil & Ref. Perry 1, sec nw 20-5n-8e. Henry et al, Whitney 1, se nw sw 14-4n-7e. American Oil & Ref., Stark 1, ne sw sw 9-4n-6e.

SEMINOLE COUNTY—Magnolia, Holmsley 8, ne se se 11-9-5. Empire Gas & Fuel, Barker 2, nw se ne 12-9-5. Magnolia, Dixon 4, nw se sw 12-9-5; Seay 7, nw sw sw 12-9-5; Seay 8, ne sw sw 12-9-5; Seay 9, se nw sw 12-9-5. Twin State, Barker 6, sw ne ne 12-9-5. Pure, Aldridge 6, nec sw 3-9-6. Roxana, Strothers 4, nwc se 3-9-6. Larkin et al, Cluck 1, ne nw nw 4-9-6. Superior, Varnum 1, ne sw nw 4-9-6; Varnum 2, se sw nw 2-9-6. Barnsdall, Fife 1, nec nw 14-8-5. Gypsy, B. Dosier 1, sec ne 7-8-6e; Bradley 1, ne se sw 9-8-6. Sinclair Oil & Gas, C. Jones 6, sw ne se 9-8-6. Magnolia, Cordell 2, sec nw 11-8-6; M. Davis 1, nenw ne 13-8-6. Texas Co., Reed 15, nw ne ne 14-8-6. Magnolia Pattey 1, sw se ne 35-8-6; Pattey 2, nw se ne 35-8-6. I. T. I. O., Phoebe B4, nw ne sw 36-8-6. Philmack, Alex 1, nw sw ne 1-7-6. Gypsy, Wadsworth 1, nwc se 1-7-6.

STEPHEN COUNTY—Mudge Oil., March 1, se sw se 15-1s-5w.

TULSA COUNTY—Savoy Oil., Agent 1, swc nw ne 8-16-14e.

WAGONER COUNTY—R. H. Perry, Cousins 3M, sec nw ne 7-17-16e. J. H. Scriba, Cane 4, sec nw nw sw 30-17-18e.

CALIFORNIA

COALINGA—Standard, 227, 7-20-15.

HUNTINGTON BEACH—Ben F. Mun, Mun 1, 10-6-11. Davis, Quine & Davis 1, 10-6-11. J. F. Garliepp 1, 10-6-11. Golden Rod Oil Co. 3, 2-6-11. J. E. O'Donnell 60, 27-5-11.

KERN RIVER—General Pet. Corp. 28, 14-28-27. George F. Getty, Lehnhardt 18, 14-28-27; Lehnhardt 19, 14-28-27. George F. Getty, Inc., Tegeler 24, 22-28-27.

LOS ANGELES COUNTY—Anchor Pet. Co. 1, 19-2-10.

SANTA BARBARA COUNTY—San Marcus Oil Co., 1, 3-6-29.

SEAL BEACH—Marland, M. & S. 20, 11-5-12.

VENTURA—Pet. Securities Co., Orton 4, 28-3-23; Willett 3, 28-3-23.

LOUISIANA

ACADIA PARISH—Cline, Smith & Cline, Lake Charles, Cline et al 1, 45-9s-2w, 340 ft n and 507 ft w of sec. Coastal Oil & Fuel Corp., Crowley, Crowley Oil & Mineral Co. 95, 48-9s-2w, 2050 ft e and 300 ft n of swc.

BOSSIER PARISH—R. L. Crook, Shreveport, Larkin 5, 14-19n-11w, 392 ft n and 450 ft e of swc nw sw; Larkin 6, 14-19n-11w, 692 ft n and 750 ft e of swc nw sw. J. S. McCullough, Tr., Shreveport, Hodges 3, 25-16n-12w, 3545 ft n and 3350 ft w of sec.

CADDO PARISH—Owl Oil Co., Greenwood, J. H. Bryson 3, 7-17n-16w, 200 ft s and 200 ft e of nwc.

JEFFERSON DAVIS PARISH—J. E. Carradine, Shreveport, Woods 1, 21-9s-5w, 350 ft n and 400 ft w of sec.

LA SALLE PARISH—Natural Gas & Fuel Corp., El Dorado, Ark., Urania M-11, 20-10n-2e, 330 ft w and 630 ft s of center. W. D. Wingfield, El Dorado, Ark., Gibson 3, 2-9n-1e, 300 ft w and 200 ft s of nec sw se.

MOREHOUSE PARISH—Natural Gas Producing Co. of La., Bastrop, Tensas Delta 9, 27-22n-4e, 1320 ft n and 1323 ft e of swc; 10, 27-22n-4e, 1320 ft n and 1323 ft w of sec. Charles W. Frierson, Tr., Monroe, W. C. Feazel 1, 17-19n-4e, 550 ft s and 150 ft e of nwc.

ARKANSAS

NEVADA COUNTY—Autrey Oil Co., Martin A-3, 6-14-20, 297 ft s and 150 ft e of nwc nw sw. J. J. O'Brien, Moss B-4, 1-14-21, sec nw se.

OUACHITA COUNTY—Moody Oil Corp., Becon 1, 12-11-18, lcn not checked.

UNION COUNTY — Natural Gas & Fuel Corp., Hill 1, 5-16-15, sec ne sw.

TEXAS

ARCHER COUNTY—Staley-Wynne & Co., Wichita Falls, Turbeville C 5, blk 146, R. Carson sur, 150 ft from s and 150 ft from e line. Harry Hines, Wichita Falls, Wilson 1, blk 120, Amer. Trib. sur, 450 ft from e and 150 ft from n line. Barkley & Meadows, Wichita Falls, Andrews 1, blk 12, Wm. Spavin sur, 150 ft from s and e lines. Koll-Tex Oil Co., Wichita Falls, White 3, S 41, blk 12, Amer. Trib. sur, 300 ft s of 2. Bridwell & Heydrick Oil Co., Wichita Falls, Abercrombie 1, blk 44, J. W. Harris sur, 450 ft from s and w lines. Stanley McGregor, Wichita Falls, Farmer 1, Anderson sur, 150 ft from s and w lines. C. P. Burton, Wichita Falls, Farmer A1, J. Poitevent sur, 150 ft from s and e lines.

BROWN COUNTY—Roxana, South Bend, Smith 10, S 1, SA&MG sur, 798 ft from w and 503 ft from s line; 11, 474 ft from w and 503 ft from s line. Wilson & Vandiver, Brownwood, Eads 1, S 103, S. Barry sur, 350 ft from s and 150 ft from e line. Sinclair, Fort Worth, Smith 2, S 1, SA&MG sur, 101 ft from e and 1353 ft from s line. Roxana, South Bend, Smith 8, S 1, blk X, SA&MG sur, 161 ft from e and 150 ft from s line; 9, 150 ft from n and w lines. Rex Tex Oil Co. & Py-Tex Oil Co., Fry, Smith 1, S 1, SA&MG sur, 150 ft from s and e line. Humble, Cisco, Foster 13, T. Benson sur. Sinclair, Fort Worth, Smith 1, S 1, SA&MG sur, 161 ft from w and 150 ft from s line. Forest Oil Corp., Fort Worth, Smith 8, S 1, 350 ft n of 7; 9, 353 ft n of 8. Cranfill & Reynolds, Cisco, Smith 5, S 3, SA&MG sur, 300 ft e of 4. J. K. Hughes Dev. Co., Mexia, Gilbreath 1, SA&MG sur, 150 ft from s and e lines. F. D. Williamson, Brownwood, Edington 1, S 141, R. Mitchell sur, 150 ft from n and 1220 ft from w line. A. D. Lloyd, Fort Worth, Collier 4, No. 139, J. Wynn sur, 200 ft from nw and 225 ft from ne line. Roxana, South Bend, Smith 6, S 1, blk X, SA&MG sur, 1122 ft from w and 150 ft from s line. Humble, Cisco, Foster 13, T. Benson sur, 527 ft from e and 462 ft from s line. Forest Oil Corp., Fort Worth, Smith 7, S 1, 265 ft ne of 6. Golden Rod Oil Co., Dallas, Whidden 2, W. I. Irion sur, 150 ft from w and 678 ft from s line. E. L. Smith Oil Co., Inc., Mexia, Moore 1, S 4, SA&MG sur, 150 ft from n and w lines; Smith 1, S 1, SA&MG sur, 150 ft from s and e lines; 6, 150 ft from s and w lines.

BEXAR COUNTY—Associated Pet. Co., Fort Worth, Koehler 6, No. 265 J. Wilson sur, 525 ft n of 5.

BREWSTER COUNTY—Mid-Kansas O. & G. Co., Tulsa, Okla. Turney 1, S 77, blk 213, T&St.L sur, 780 ft from e and 4570 ft from s line.

BRAZORIA COUNTY—Roxana, Houston, Schepler 1, J. McNeel sur, 488 ft from s and 321 ft from e line.

BAILEY COUNTY — Humble, Houston, Fuqua 1, S 117, blk A, Blum & Blum sur, 1320 ft from e and 2640 ft from S1.

CALLAHAN COUNTY — Roxana, South Bend, Swafford 1, G. W. Vigal sur, 150 ft from s and w lines. Empire G. & F. Co., Wichita Falls, Smith 1, S 151, GH&H sur, 330 ft from s and w lines. Warren-Hayes Oil Corp., Cisco, Brandon 2, 2267, TE&L sur, 501 ft from s and 880 ft from w line. Prairie O. & G. Co., Ranger, Brown 4, G. M. Vigal sur, 150 ft from s and w lines; Swafford 1, G. M. Vigal sur, 150 ft from n and e lines. Beans & Kingwood Oil Co., Okmulgee, Okla., Jackson 3B, S 14, E. T. Ry sur, 1239 ft from e

and 1174 ft from n line. H. G. Bailey et al, Cisco, Brown 1, 2275, TE&L sur, 450 ft from s and e lines. Navarro Oil Co., Houston, Bennett 4, blk 99, C. C. S. L. sur, 490 ft from n and 150 ft from e line.

COOKE COUNTY — United Prod. Co., Wichita Falls, Scott 1, No. 3, E. T. Ry sur, ne corner. Bulcher O. & G. Co., Gainesville, Dennis 1, A. Pope sur, 150 ft from n and w lines. Oil Operator's Trust, Fort Worth, Hofbauer 1, blk 9, J. Barnett sur, 150 ft from n and w lines; Stoffels 1, blk 63, Muenster sur, 150 ft from n and w lines; Koelzer 3, blk 13, T. Scott sur, 300 ft e of 2. Cooke County Dev. Co., Fort Worth, K of C 1, blk 58, Muenster sur, 50 ft from n and 75 ft from w line. Hedrick-Camp Drilling Co., Wichita Falls, Kleiss 9, blk 2, W. J. Littleton sur, 150 ft from w and 153 ft from s line. T. S. Stoneman, St. Jo, Harris 1, J. Harris sur, 150 ft from s and w lines. Gray & Adams, Inc., Gainesville, Wellesley 4, blk 59, Muenster sur, 150 ft from n and e lines.

CRANE COUNTY — Magnolia, Dallas, O'Keefe 11, S 38, blk 30, Univ. Lands sur, 660 ft e of 5. Tidal Oil Co., Fort Worth, University I 6, S 47, blk 30, Univ. Lands sur, 330 ft from e and 200 ft from s line. Gulf, Fort Worth, McElroy 40, S 201, blk F, CCSD&RGNG sur, 660 ft w of 41; 41, 750 ft sw of 22.

CALDWELL COUNTY—Texas Co., Houston, Clingsmith 1, S Damon sur, 1552 ft from se and 150 ft from sw line; 2, 347 ft se of 1; 3, 310 ft se of 2; Lackey 1, N. Kelly sur, 150 ft from n and w lines. Beaty 2A, N. Kelly sur, 150 ft from s and e lines. Sun Oil Co., Dallas, Beaty 1, N. Kelly sur, 150 ft from ne and 450 ft from se line.

COLEMAN COUNTY — Murray Bros. & Jamison, Coleman, Odom 1, No. 738, D. A. Murdock sur, 150 ft from s and w lines; Texas Co., Wichita Falls, Green 1, blk 44, M. Chavez sur, 150 ft from s and w lines.

CROCKETT COUNTY—Henshaw Oil Co., San Angelo, Noelke-Murphy 1, S 10, blk PP, H&TC sur, 660 ft from n and w lines. World Oil Co., Fort Worth, Powell 1, blk BB, S 62, EL&R sur, 330 ft from w and 132 ft from n line.

CLAY COUNTY—O. L. Soules, Burkburnett, Landrum 5, blk 5, P. C. S. L. sur, 300 ft s of 1.

DUVAL COUNTY—Schleisinger Oil Corp., San Antonio, Hahl 2, S 60, No. 60 sur, 330 ft from n and e lines.

EASTLAND COUNTY — Mook-Texas Oil Co., Fort Worth—Sibley 5, W. Van Norman sur, 494 ft from s and 1050 ft from w line; 6, 400 ft w of 5; 7, 450 ft w of 6; 8, 894 ft from s and 200 ft from e line. J. E. Lewis & Co., Eastland, Hargus 3, S 3, blk 6, E. T. Ry sur, 850 ft from n and 170 ft from e line. States Oil Corp., Eastland, Sibley 4, W. Van Norman sur, 1100 ft from w and 200 ft from s line; 3, 650 ft from w and 200 ft from s line. Home O. & G. Co., Inc., Albany, Brewer 1, S 30, blk 1, H&TC sur, 750 ft from w and 450 ft from s line.

FRIO COUNTY — P. A. Neilan, Houston, Blackaller 2, blk 14, J. Gourley, n central.

FOARD COUNTY—Fain-McGaha Oil Corp., Wichita Falls, Mathews 1, GC&SF sur, 150 ft from w and 900 ft from s line.

GONZALES COUNTY—L. P. Unkel, Ganzales, Johnston 4, C. H. Jaeger sur, 300 ft from se and 1200 ft from sw line.

GLASSCOCK COUNTY — L. C. Harrison, Midland, Roberts 2, S 156, blk 29, WN&NW sur, 154 ft s of center of n line.

HARDIN COUNTY — Paraffine Oil Co., Houston, Fee 70, 572 ft from w and 50 ft from s line.

HARRIS COUNTY—C. G. Hooks, Houston, Lajarzo Oil Co. 1, A. M. Lajarzo, sw corner.

HARRISON COUNTY—C. H. Lyons et al, Shreveport, La., Bryson 2, T. D. Wilson sur, 200 ft from s and 1000 ft from e line. Tylong O. & G. Co., Inc., Giddens-Land Bldg., Shreveport, La. Cole 2, R. W. Bedford, n central.

JEFF DAVIS COUNTY—J. K. Hughes Dev. Co., Mexia, Means 2, S 431, blk 4, H&TC sur, 1328 ft from e and 1485 ft from s line.

JOHNSON COUNTY—J. M. Evans et al, Dallas, Stark 1, S 160, blk 13, ne corner.

JEFFERSON COUNTY—Yount-Lee Oil Co., Beaumont, Gladys 38, blk 96, J. A. Veatch sur, 67 ft from s and 89 ft from w line; McFaddin 41, blk 1, P. Humphreys sur, 885 ft from e and 746 ft from n line.

MONTAGUE COUNTY—Bridwell, Heydrick & Continental Oil Co., Wichita Falls, McGaughey 2, G. Nichols sur, n of 1. J. B. Jameson, Concord, N. H., Cunningham 1, blk a15, G. Bayne sur, 150 ft from n and e lines. Gulf, Fort Worth, Loy 1, Wm. Donoho sur, 150 ft from n and e lines.

McCULLOCH COUNTY—Brown & Shore, Coleman, Shelton 1, S 141, H&TC sur, 800 ft from w and 1200 ft from s line.

MILAM COUNTY—W. A. Jones, Minerva, Smith 2, T. J. Chambers sur, 325 ft nw of 1.

PECOS COUNTY — Mid-Kansas O. & G. Co., Tulsa, Okla., Smith-Taylor 2, S 33, blk 194, GC&SF sur, 1704 ft from n and 200 ft from w line; Smith 1, S 31, blk 194, GC&SF sur, 1320 ft from n and e lines. Simms Oil Co., Dallas, Devlin 2, S 2, J. C. Duval sur, 330 ft from n and w lines. Henshaw Oil Corp., San Angelo, Sweatt-Hinyard 1, S 28, blk 144, T&St.L, center.

REAGAN COUNTY—Henshaw Oil Corp., San Angelo, University 1, S 14, blk 48, Univ. Lands, center.

SHACKELFORD COUNTY—Humble, Cisco, Davis 3, S 218, E. T. Ry. sur, 139 ft from e and 1014 ft from s line. Sowell Bros., Dallas, Wahl 2, S 2, Bayland Asy. sur, sw corner. L. H. Wentz, Eastland, Reynolds 11, S 13, blk 11, T&P sur, 313 ft from e and 199 ft from s line. T. G. Shaw, Fort Worth, Brotherhood 23, S 36, Univ. Lands sur, 600 ft ne of 18.

THROCKMORTON COUNTY—Associated Pet. Co., Fort Worth, Cummings 4, S 31, Comanche Res. sur, 560 ft from e and 160 ft from s line. Reynolds 5B, blk 44, Comanche Res. sur, 200 ft from n and 600 ft from w line.

WICHITA COUNTY—Wilson Drilling Co., Wichita Falls, Kemp & Kempner 4, S 4, blk 57, 250 ft e of 2. Grisham & Marland Oil Co., Fort Worth, Ferguson 1, Spiller sur, 150 ft from s and e lines. W. E. Timbline et al, Wichita Falls, Dodson 3, W. H. Anderson sur, 300 ft n of 2. Texas Co., Wichita Falls, Waggoner 330, N. B. Mead sur, 1688 ft from e and 1768 ft from s line; 332, HT&B sur, 338 ft from w and 2753 ft from s line. J. H. Cottom, Wichita Falls, Overby 3, J. W. Sharp, 150 ft from s and 750 ft from w line. J. H. S. Bonner, Wichita Falls, Cole 19, J. McCool sur, sw of 1.

WILBARGER COUNTY—Cosden & Consolidated Oil Co., Wichita Falls, Waggoner 9, S 67, blk 4, H&TC sur, 510 ft from n and 150 ft from w line. Staley, Wynne & Co., Wichita Falls, Waggoner 1, S 9, blk 5, H&TC sur, 150 ft from n and w lines.

WINKLER COUNTY—Roxana, South Bend, Hendricks A1, S 45, blk 26, School sur, 330 ft from s and w lines; Hendricks B1, S 29, blk B5, School sur, 330 ft from s and w lines. Southern Crude Oil Purchasing Co., Shreveport, La., Hendricks 1, S 35, blk B5, School sur, 330 ft from s and w lines; Hendricks 1, S 28, blk B5, School sur, 330 ft from n and w lines. Cranfill Bros., Dallas, Bashara 1, S 22, blk 77, School sur ,on ne cor of sec.

WHARTON COUNTY—Texas-Gulf Sulphur Co., Houston, Davidek 1, blk 44, Missouri Lands sur, 130 ft from sw and 250 ft from se. Geo. Hyde, Houston, Bay 2, blk 14, Missouri Lands sur, 50 ft from nw and 500 ft from ne line.

WEBB COUNTY—E. L. Woodard, Laredo, Webster 1, No. 684 sur, 150 ft from n and w lines. Trussell, Cezereaux & Putnam, Inc., Laredo, Bruni 1, S 10, blk 50, M. Arispe sur, 200 ft from nw and 450 ft from ne line.

YOUNG COUNTY—H. N. Pardner, Cisco, Daws 2, 751, TE&L sur, 150 ft from s and e lines. M. K. Lyman, Breckenridge, Davis 1, S. D. Davis sur, 38 ft from e and 190 ft from s line. Panhandle Ref. Co., Wichita Falls, McCluskey 21, 3415, TE&L sur, 85 ft e of 6. Eureka Prod. Co., Tulsa, Brazos River 7, Brazos River sur, 250 ft from n and 110 ft from e line. Clark, Baldwin et al, Graham, Drum 1, S. Tynes sur, 150 ft from n and e lines. Seaboard O. & G. Co., Wichita Falls, Graham 10, S. Tankersley sur, 355 ft e of 3. Grisham & Burton, Wichita Falls, Casey 1, 1906, TE&L sur, 150 ft from center of w line. Panhandle Ref. Co., Wichita Falls, Renton 1, 265, TE&L sur, 450 ft from n and 1825 ft from w line. Carey Bros. Oil Co., Wichita Falls, Boley 1, 194, TE&L sur, 495 ft from n and 750 ft from w line. F. O. Harrell, Wichita Falls, Renton 1, 266, TE&L sur, 150 ft from n and e lines. Texas Co., Wichita Falls, Dietrich 1, G. W. Stell sur, 150 ft from s and w lines. D. O. Johnson, Wichita Falls, Eichelberger 1, 1453, TE&L sur, 150 ft from n and 1085 ft from w line. Roxana, South Bend, Ford 13, W. T. 1520 ft from n and 300 ft from w line. Roy I. Carter, Wichita Falls, Campbell 1, 3401, TE&L sur, 150 ft from s and e lines. Pitzer & West, Breckenridge, Hinson 1, P. Pier sur, 200 ft from n and e lines. Godley O. & G. Co., Dallas, Graham 1A, S. Tankersley sur, 150 ft from n and 160 ft from e line.

West Columbia Leads Gulf Coast in Yield Per Acre

(Continued from page 59)

other fields the productive area is scattered, with producing wells in many cases isolated or in small groups at comparatively long distances from other wells. In such cases the rule that was followed was to consider 250 feet on each side of a well as productive acreage. If, for example, four wells in a field were comparatively far removed from other producing wells, being 300 feet apart in a straight line, the productive acreage was figured as a strip 500 feet wide, 250 feet on each side of the string of wells, and 1400 feet long, 900 feet between the first and the fourth well, and 250 feet additional at each end of the row of wells. Several geologists were consulted as to this method of determining the productive acreage, and agreed that it would be fairly compatible with the geological conditions of the salt dome fields.

Jennings

Jennings, or Evangeline, Louisiana, is another outstanding field of the Gulf Coast area in production per acre. From 242 acres it has produced approximately 40,000,000 barrels, an average per acre yield of approximately 162,000 barrels. Jennings is an eminent example of a field in which considerable acreage of relative poor productivity has greatly lowered the per acre yield of the field as a whole. Nearly 90 per cent of the 40,000,000 barrels of its production came from about 120 acres. Considering that main productive area alone, its yield per acre was approximately 300,000 barrels, an unusually high yield.

Like Spindle Top and West Columbia, Jennings has had an unusually great number of large producers. Two wells in the field had from 20,000 to 60,000 barrels initial production; one came in for 15,000 barrels initial; and more than 40 were completed for initial production of from 4000 to 10,000 barrels. The wells at Jennings, like those at West Columbia, were noted for their long life. Two wells in the field were especially distinguished for their large, steady production. The Bass and Beckenstein 1, which produced 1,500,000 barrels of oil in less than five months; and the Wilkens 2, which produced over 1,000,000 barrels in three months, and made a total of more than 2,500,000 barrels before it finally quit producing.

WILDCATS FROM ALL SECTIONS

LOUISIANA

Completions

Company, Well and Location	Initial Production Bbls.	Depth
CADDO PARISH—		
J. P. Evans, Trosper 1, 35-18-16....	*	919
JACKSON PARISH—		
Grigsby et al, Adams 1, 22-17-4w..	*	2900
RAPIDES PARISH—		
Seip et al, Brewer 1, 38-3-2e	*	2148
RICHLAND PARISH—		
S. D. Hunter, Seibert 1, 1-16-5e....	*	2358

BIENVILLE PARISH—E. J. Forrest's Perritt 1, 11-17-6, dr 250 ft. Kimbrough et al's Cargyle 1, 27-15-8, sd 1780 ft.

BOSSIER PARISH—Bahan & Davis' Mays 2, 22-23-12, rig. Bethany O. & G. Co.'s Dodson 2, 16-23-12, rig. Doern et al's Thomas 1, 9-22-11, wosr 3148 ft. Humble O. & R. Co.'s B. & D. 30, 15-19-11, r to make Johnson test 3674 ft. Magnolia's Rogers 1, 21-23-12, set 8⅝-inch 3086 ft; Dodson 1, 16-23-12, dr 449 ft; G. W. Roberson 1, 26-23-12, lcn; Z. Roberson 1, 23-23-12, lcn. Palmer Corp.'s Bossier L. & L. Co. 4, 9-16-11, dr 5230 ft. Simms Oil Co.'s Dodson 1, 15-23-12, rig. The Texas Co.'s Mays 1, 27-23-12, set 6½-inch cas 3087 ft; Wilkinson 1, 36-23-12, dk. Walker et al's Antrim 1, 28-23-12, sd 1360 ft. Woodley & Collins' J. S. Farrington 1, 23-23-12, dr 2570 ft; M. A. Farrington 1, 22-23-12, dr 2734 ft; Matlock 1, 23-23-12, dr 2688 ft.

CADDO PARISH—Arkansas Fuel Oil Co.'s Lane 2, 13-21-15, bailing 3623 ft. Bendeum & Trees' Huckaby 1, 14-21-15, coring 3572 ft; Bashara 2, 23-21-15, dr 1530 ft. Bethany O. & G. Co.'s Offenhauser 1, 1-20-16, wosr 2260 ft. Dixie Oil Co.'s C. M. L. 49, 23-21-15, dr 820 ft; Files-Mabry B-6, 14-21-15, dr 1982 ft; Slattery 10, 27-21-15, ur 4½-inch cas 4022 ft; Noel A-2, 13-21-15, pr 6¼-inch 3875 ft; Robertshaw 89, 14-21-15, dr 2592 ft; Robertshaw 90, 14-21-15, rig. W. W. Dodson's Rives 6, 5-20-16, setting 6-inch 1865 ft. J. P. Evans' Trosper 2, 35-18-16, lcn. J. B. Files' Payne 1, 35-23-16, sd 925 ft. Falcon Drilling Co.'s Schmidt 1, 27-20-15, dr 1040 ft. J. C. Gray et al's Hart 1, 29-21-16, coring 1907 ft. Greenwood Prod. Co.'s Agurs 2, 6-16-16, cemented back to test 1020 ft; Thigpen & Herold 1, 23-18-16, sd 910 ft; Thigpen & Herold 2, 24-18-16, set 8-inch 895 ft; McCtucheon 1, 15-17-16, lcn. Gulf Ref. Co.'s Tyson 14, 14-21-15, set 6⅝-inch 3652 ft; Tyson 15, 14-21-15, dr 3625 ft; Herndon 10, 15-21-15, dr 3406 ft. Golden Rod Oil Co.'s Hampton A-1, 15-21-15, dr 895 ft. B. A. Hardy Tr.'s Bickham 1, 23-18-16, arr to test 900 ft. Haynes Bros.' Murray 2, 14-21-15, 15 mil ft gas 3570 ft; Spell 1, 15-21-15, set 6⅝-inch 3665 ft. Bert Kouns' Hoss 1, 35-18-16, dk; Hoss 2, 35-18-16, lcn. Magnolia's Bell 1, 4-7-16, dr 2580 ft; J. W. Furrh 1, 28-18-16, arr to cement cater at 887 ft; F. Furrh 1, 32-18-16, lcn; Dillon 18, 24-21-15, dk; Dillon 21, 23-21-15, lcn; Robertshaw 21, 23-21-15, dr 3156 ft; Raines 26, 22-21-15, dr 1758 ft. Ohio Oil Co.'s Aaron B. Land Co. 1, 32-23-16, sd 1553 ft; Plum 1, 32-23-16, sd 1619 ft; Smith 25, 12-21-15, wosr 4603 ft. Pittsburgh O. & D. Co.'s Huckaby 1, 15-21-15, set 6⅝-inch 3619 ft; Herndon 1, 15-21-15, dr 2780 ft. Shawmut Pet. Co.'s Jolly 5, 22-22-15, lcn. Shreveport Oil Corp.'s State 1, 23-21-16, dk; State 2, 27-21-15, sd 2400 ft. Simplex Oil Co.'s Thomas et al 3, 15-20-15, wosr 2355 ft. Standard's Trosper 2, 24-18-16, sd 3078 ft; Stiles 189, 27-21-16, dk. State Line O. & G. Co.'s Wheeler 1, 16-18-16, sd 986 ft; Thigpen-Herold 4, 26-18-16, sd 891 ft; Thigpen-Herold 5, 28-18-16, rig. The Texas Co.'s C. M. L. Co. 47, 23-21-15, wtg for rig, 3657 ft; C. M. L. 50, 23-21-15, dk; Mabry 10, 15-21-15, dr 2250 ft; C. M. L. 49, 23-21-15, dr 2006 ft; Hutchinson 4, 9-15-12, sr 1993 ft; Herndon 6, 14-21-15, dr 2945 ft; Herndon 8, 14-21-15, dr 2996 ft; Herndon 9, 14-21-15, rig; Herold 9, 14-21-15, dr 2300 ft; Herold 10, 14-21-15, rig; Raines 19, 15-21-15, set 15½-inch 204 ft. Tubbs et al's Hines 1, 16-14-16, rig. Woodley Pet. Co.'s Knight B-2, 11-15-12, set 10-inch 93 ft.

CALDWELL PARISH—Grayson Oil Co.'s Crockett 1, 6-12-4, sd 2692 ft. Southern Crude Oil Purchasing Co.'s Caldwell L. & T. Co. 8, 5-13-5e, sd 147 ft.

CATAHOULA PARISH—S. D. Hunter's Tensas Delta 2, 21-9n-6e, rig. Lochnager O. & G. Co.'s Beasley 1, 26-9-6e, sd 3093 ft.

CLAIBORNE PARISH—Magnolia's Lee 1, 16 22-8, r 4039 ft.

DE SOTO PARISH—J. H. Askew's Richardson 1, 25-13-11, lcn. Berry & LeGrand's Giaque 1, 3-10-11, dk. Clark & Melat's Payne 2, 12-11-16, set 6-inch 2545 ft. Chal Daniels et al's Johnson 1, 1-11-16, sd 100 ft. Dixie's Jenkins 1, 9-12-11, dr 5498 ft. Helm & Jarman's Joyner 1, 28-11-12, sd 3018 ft. Hoosier Oil Co.'s Lanier 2, 5-11-11, lcn; Lanier 1, 5-11-11, lcn. Reliance Drilling Co.'s Jones 1, 8-11-14, sd 2815 ft. W. M. Sebastian's 1, 11-10-13, sd 3405 ft. The Texas Co.'s Sample C-15, 36-13-12, dr 2547 ft; Wemple A-6, 2-12-12, wtg on cmt 2400 ft; Brickenhoff B-36, 3-10-13, wtg on cas 2502 ft.

FRANKLIN PARISH—T. R. Cowell's Moore 2, 12-11-6e, bridge sd 1385 ft. Barbour Oil Co.'s Baker 1, 3-15-7e, dr 2960 ft.

GRANT PARISH—Holmes et al's Fee 2, 17-9-1e, sd 1632 ft. L. C. Swope et al's Fee 3, 18-9-1e, arr to plug back to 1607 ft; Fee 4, 18-9-1e, sd 1460 ft.

LA SALLE PARISH—Ayers Bros.' Urania 5, 3-10-2e, set 6-inch 1505 ft. Bruce-Hunt's Urania 1, 7-10-2e, set 6-inch 1500 ft. Hope O. & G. Co.'s Urania 4, 19-10-2e, setting 6⅝-inch 1500 ft. Wingfield et al's Gibson 2, 2-9-1e, sd 1516 ft. Zoder et al's Urania 4, 7-10-2e, dr 150 ft.

MOREHOUSE PARISH — Consolidated Carbon Co.'s Perry 1, 14-20-4e, lcn. W. C. Feasel's Faulk 1, 15-20-4e, dr 1220 ft. Falcon Drilling Co.'s Gladney 1, 5-21-7e, dr 2775 ft. Keisker et al's Bonita Lumber Co. 1, 10-23-9e, dk. Natural Gas Pro. Co.'s Crossett 20, 21-23-7e, dr 3170 ft. The Texas Co.'s Silvey 1, 22-20-6e, dr 1820 ft. United Carbon Co.'s Atkins 1, 26-20-5e, dk.

NACHITOCHES PARISH—Lawson & Pharris' Clark & Morse 2, 3-5-6w, dk. Ohio Oil Co.'s L. & A. 2, 26-13-6, arr to test 2500 ft. Tate et al's Leopole 1, 4-10-10, lcn.

OUACHITA PARISH—J. S. Gould's Grayling Lbr. Co. 1, 11-15-2e, dr 600 ft. Industrial Gas Co.'s Sullivan 1, 5-18-4e, set 8-inch 872 ft. Jordan Drilling Co.'s Fudicar 2, 25-18-4e, sd 2648 ft. Louisiana Dev. Co.'s Fee 43, 35-19-2e, set 8-inch 856 ft. Ouachita Natural G. & O. Co.'s D'Arbonne 2, 25-19-2e, sd 2780 ft. Ouachita Gas Co.'s Leiber 4, 3-19-4e, set 8-inch 806 ft. Peerless Co.'s Moore 3, 49-20-4e, lcn.

RAPIDES PARISH—Minnesota Oil Corp.'s Watternack 1, 7-5-3w, sd 3997 ft. George Sebastier's Ritchie 1, 38-5-4, sd 2750 ft.

RED RIVER PARISH — Hazlett-Simmons Neeley 1, 1-14-12, sd 1740 ft.

RICHLAND PARISH — Gulf's Marshall 2, 29-17-6e, rig. Ouachita Natl. Bank 1, 25-17-5e, dr 1680 ft. Helm et al's Tensas 1, 10-14-5e, sd 22 ft. Louisian Pet. Co.'s Binion 1, 22-17-6e, sd 2474 ft. Moody & Seagraves' McCoy 1, 36-16-6e, dr 50 ft; Helmer 1, 20-16-6e, set 15½-inch 150 ft. Natural Gas & Fuel Corp.'s Sortor 1, 20-16-6e, rig. Oliver et al's Hatch 1, 2-15-5e, sd 2316 ft. Ruston Drilling Co.'s McCoy 1, 3-16-6e, sd 2304 ft; McCoy 2, 8-16-6e, dr 1500 ft. Standard Drilling Co.'s Delta H. L. Co. 1, 22-16-7e, sd 200 ft. Tex-La. Carbon Co.'s Broughton 1, 1-15-5e, washing to bottom 2602 ft. Woodley Pet. Co.'s Hemler 1, 31-18-7e, rig.

SABINE PARISH—Arkansas Fuel Oil Co.'s Logan A-1, 23-10-12, set 6⅝-inch 3025 ft; Logan 10, 32-10-12, dr 2960 ft; Logan 11, 33-10-12, dk. Emlet et al's Bowman Hicks 5, 8-7-12, sd 4070 ft; Bowman Hicks 6, 8-7-12, arr to deepen 3710 ft; Bowman Hicks 7, 11-7-14, sd 2555 ft; Bowman Hicks 8, 16-7-12, sd 579 ft. Mansfield H. L. Co. 1, 15-7-14, sd 515 ft. Foster et al's Nabors 1, 30-10-12, set 6½-inch 3065 ft. Frazier et al's Harris 1, 29-10-12, dk. Longoria et al's Burkett 1, 9-9-12, dk. H. J. Morgan's Reese 1, 5-9-12, arr to abn 3385 ft. Magnolia's Rembert 1, 32-10-12, coring 3188 ft; Hall 2, 33-20-12, dr 135 ft. Moffatt et al's Moore 2, 5-9-12, dr 750 ft. Tate et al's Cook Land Co. 1, 23-10-11, dr 2980 ft. A. H. Tarver Long Leaf Lbr. Co. 1, 5-8-13, sd 204 ft.

UNION PARISH—Camette et al's Tugwell 1, 21-22-1e, sd 2405 ft; Tugwell 2, 21-22-1e, lcn. Interstate Natural Gas Co.'s Parks 1, 23-20-1e, rig. Natural Gas Prod. Co.'s Peak 3, dr 75 ft. Southern Carbon Co.'s Jackson 1, 20-20-4e, dr 600 ft.

WEBSTER PARISH — Crusader Oil Prod. Co.'s Hope 18, 24-21-10, rig. W. T. Hunt's Bistineau-Webster Oil Co.'s 1, 35-10-10, sd 1040 ft. Magnolia's Cox 3-23-21-10, dr 4011 ft; Brantom 2, 6-22-9, set 10¾-inch 410 ft; Aarnes-Cox 3, 22-21-10, dk; Marshall 3, 21-21-10. wosr 2544 ft; Marshell 4, 21-21-10, set 10¾-inch 340 ft; Waller-Obier 1, 32-23-9, lcn; Wise 1, 30-23-9, lcn. Ohio Oil Co.'s Bank of Cotton Valley 2, 22-21-10, dk; Hollowy 4, 23-21-10, rig. Shreveport-El Dorado Pipe Line Co.'s Gamble 1, 33-20-3, dr 2420 ft. Woodley Pet. Co.'s Cox B-1, 23-21-10, fsh 4310 ft.

WINN PARISH—Dodge et al's Tremont 1, 35-13-3w, sd 1558 ft. J. C. Long's Milam 1, 28-13-3w, sd 1550 ft. Ohio Oil Co.'s Rolen 1, 9-12-1w, mudding hole 852 ft; Edenborne 1, 31-10-4w, rig. Rowe et al's Urania 1, 26-11-1e, dk. F. A. Schuman's Albritton 1, 27-10-1e, sd 1518 ft.

ARKANSAS

Completions

Company, Well and Location	Initial Production Bbls.	Depth
NEVADA COUNTY—		
Burham et al, Miller 1, 12-15-22.....	*	1340
OUACHITA COUNTY—		
Magnolia, Morgan 1, 7-15-19.....	*	3030

ASHLEY COUNTY—Glassell et al's Keller 1, 10-19-5, sd 1906 ft.

BRADLEY COUNTY — Arkansas Fuel Oil Co.'s Arkansas Timber & Land Co. 1, 25-16-12, dr 3306 ft. Johnson & Adams, Southern Lbr. Co. 1, 12-12-12, sd 2204 ft.

COLUMBIA COUNTY—Columbia Oil Synd.'s Whitehead 1, 14-19-23, sd 2350 ft. Haynes et al's Runyan 1, 3-16-21, sd 525 ft. Mitchell et al's Franks 1, 25-19-22, sd 150 ft. Mitchell & Isles' Bodcaw 2, 4-20-21, sd 2804 ft. Mair et al's Gantt 1, 15-17-22, dk. Scott-Phillips' Davis Lb. Co. 2, 6-18-20, sd 2145 ft. Tunica Pet. Co.'s Bodcaw 1, 27-19-23, dr 2600 ft. Wingfield et al's Bodcaw 1, 4-20-21, sd 2025 ft.

DREW COUNTY—McClintock et al's Ogle 1, 35-13-5, sd 2550 ft.

GRANT COUNTY—Jones et al's Meels 1, 5-4-11, sd 1400 ft.

LAFAYETTE COUNTY—Ken-Saw Pet. Co.'s Red River Lbr. Co. 2, 5-20-24, sd 2840 ft.

LINCOLN COUNTY—Pine Prairie O. & G. Co.'s Carter 1, 33-10-6, coring 2072 ft.

LITTLE RIVER COUNTY—Grote et al's Allen 1, 2-13-31, sd 2941 ft.

NEVADA COUNTY—Aines & Zingg's Womack 1, 10-14-21, sd 1060 ft. Autrey Oil Co.'s Haynie 1, 6-14-20, wosr 1169 ft; Martin A-2, 6-14-20, set 6-inch at 1180 ft; Martin A-3, 6-14-20, lcn. Fruen et al's Rhodes 1, 22-12-21, sd 1515 ft. J. J. O'Brien's Moss B-3, 1-14-21, set 10-inch at 22 ft; Haynie 1, 1-14-21, set 6-inch at 1183 ft; Moss B-4, 1-14-21, dk.

OUACHITA COUNTY—Buffalo Oil Co.'s Culp 3, 22-15-19, sd 1512 ft. Brewer et al's Curry 1, 32-15-19, rig. F. A. Book Tr.'s Johnnette 3, 33-15-16, set 4½-inch 2250 ft. Copenhagen et al's Berg 3, 13-15-17, sd 2193 ft. J. E. Crosby's Berry 15, 33-15-15, sd 2361 ft. Exchange Oil Co.'s Berg 4, 4-16-15, arr to test 2359 ft. A. T. Grayson's Reynolds 1, 21-14-17, sd 1744 ft. Louisiana Oil Ref. Corp.'s Culp 1, 22-15-19, set 6-inch 2159 ft. Magnolia Pet. Co.'s Stout B-1, 28-14-16, sd 2108 ft. Marine Oil Co.'s Hayes 5-A, 4-16-15, lcn; Hayes 8, 4-16-15, arr to deepen (depth not known); Snyder 16, 34-15-15, rig. Moody Oil Corp.'s Bacon 1, 12-11-18, lcn. Phillips' Joyce 15, tested 10 mil ft gas 2667 ft. Owenwood Oil Corp.'s Snyder 7, 34-15-15, arr to deepen 2376 ft. J. D. Reynold's Chandler 1, 3-14-18, arr to abn 1900 ft.

UNION COUNTY—Brown et al's Slaughter 1, 2-17-16, sd 2296 ft. Bondurant et al's Garner 1, 8-18-12, sd 2635 ft. Crescent Oil Co.'s Saxon 1, 5-16-16, sd 53 ft. W. H. Gilliland's Hodges B-1, 1-16-17, sd 2565 ft. Gulf Ref. Co.'s Murphy 45, 4-16-15, dk. Imperial O. & G. Co.'s Murphy 5, fsh 2565 ft; Goodwin 1, 26-17-16, sd 3118 ft. W. R. Keever's Ezell 2, 12-17-15, dr

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2900 ft; Ezell 3, 12-17-15, lcn. Keene & Wolfe's Murphy 6, 9-16-15, dk. Lyall et al's Stegall 1, 11-17-13, sd 47 ft. Lion O. & Co.'s Hayes 6, 4-16-15, set 6⅝-inch 2350 ft. Magnolia's Crawford 3, 8-16-16, dk; Laney 3, 8-16-16, dk; Laney 4, 8-16-16, dk; Murphy 3, 8-16-15, set 6⅝-inch 2612 ft; Wilson 6, 17-16-15, sd 2760 ft; Wilcson 7, 17-16-15, dk; Carroll 1, 1-17-14, dr 1740 ft. Mazda Oil Corp.'s Boyd 1, 9-17-15, sd 2043 ft. Mounts et al's Pratt 6, 8-18-15, arr to recement 2146 ft. Murdock et al's Vestall 1, 17-16-15, sd 2561 ft. National Consolidated Pet. Co.'s W. A. Fagg 1, 8-16-16, sd 2642 ft. Natural Gas & Fuel Corp.'s Lawton C-4, 10-16-15, testing 2436 ft; Hill 1, 5-16-16, lcn. J. J. O'Brien's Saxon 1, 16-16-16, cemented bottom of hole at 2658 ft. Ohio Oil Co.'s Murphy 5, 9-16-15, sd 2736 ft; Pumphrey 1, 1-17-14, sd 3212 ft; Crain 2, 1-17-14, rig. Owenwood Oil Corp.'s Goode 1, 31-16-13, dr 2530 ft. Revenger Oil Corp.'s Harrell 4, 15-17-16, dk. S. Richardson's Lawton 2, 10-16-15, fsh 2330 ft. Rice et al's Newton 1, 13-17-16, sd 2457 ft. Simms Oil Co.'s Ballard 1, 9-18-13, abn 2673 ft. Skelly Oil Co.'s Roper 12, 3-16-15, coring 2655 ft. Southern Crude Oil Purchasing Co.'s Wells A-5, 15-16-15, setting lead seal to case off sw 2675 ft; Lyell B-7, 3-16-17, arr to deepen (depth not known). Smitherman & McDonald's Saxon B-4, 5-16-16, dr 2150 ft. Sun Oil Co.'s Hays 3, 3-16-15, arr to abn 2275 ft. Unity Pet. Co.'s Roper 15, 3-16-15, wosr 1978 ft. Wingfield et al's Greer 1, 15-19-13, sd 50 ft.

NORTH CALIFORNIA

Completions

Company, Well and Location	Initial Production Bbls.	Depth
MONTEREY COUNTY—		
Petroleum Securities Co., No. 1....	*	2660
NORTH MIDWAY—		
Richfield Oil Co., Mason 5, 6-31-23..	*	3700

FRESNO COUNTY

CLOVIS—Fresno-Madera Oil Co.'s 1, 18-12-21, dr 3806 ft.

KETTLEMAN HILLS—Superior Oil Co.'s 1, 26-21-17, lcn.

NORTH COALINGA—Superior Oil Co.'s 1, 16-17-14, bldg rig. Potter & Esplin's 1, 6-16-14, rig.

RAISIN CITY—Fresno-United Oil Co.'s 1, 23-15-18, sd 3960 ft.

WARTHAM—Bald Mountain Drilling Co.'s 1, 20-12-14, sd 905 ft. Progressive Oil Co.'s 1, 20-19-15, sd 1105 ft.

KERN COUNTY

ANTELOPE PLAINS—W. H. Davis' 1, 13-26-17, dr 3212 ft.

BAKERSFIELD—Pacific Eastern Prod. Co.'s Union Avenue 1, casing repaired, testing for prod., td 4393 ft.

BELRIDGE—Zurich Oil Co.'s 1, 18-28-22, sd 965 ft.

BUTTONWILLOW — Milham Exploration Co.'s K1A, 8-28-23, completed at 3660 ft as gas well; Salisbury 1, 7-29-24, sdtr 4020 ft.

COMANCHE POINT—Kern 29 Oil Co.'s 1, 29-31-30, sd 2440 ft.

DELANO — Chanslor-Canfield Midway Oil Co.'s 1, plugging back from 2294 ft to 1750 ft for prod test.

EDISON—Kerwin & Seale's 1, 4-30-29, rig. George F. Getty's 1, 22-29-29, rig. General Pet. Corp.'s 1, 5-30-29, rigging rotary.

DEVILS DEN—W. F. Garret's 1, 30-25-19, rig. Marathon Oil Co.'s 1, 13-25-18, sd 4390 ft. Midway Northern Oil Co.'s 1, 25-25-18, dr 2116 ft. Robins Oil Co.'s 1, 25-25-18, sd 2280 ft. R. H. Sayers' 1, 25-25-18, sd 1470 ft.

GREENFIELD—Mays & Valencia's 1, 31-30-28, rigging rotary.

GOULD HILLS—Bomke & Ball's 12-29-21, cmt 935 ft. California-Kentucky Oil Co.'s 1, 8-29-21, co 1535 ft. Mendocino Midway Oil Co.'s 1, 28-29-21, sd 2930 ft. Rhoads Oil Co.'s 1, 20-29-21, sd 1485 ft. L. E. Westrich's 1, 19-29-21, sd 1800 ft.

McKITTRICK—Abbott Pet. Co.'s 1, 2-30-21, sd 1990 ft. Lacy-Esper Petroleum Co.'s 1, 18-19-22, sd 3265 ft. Myrtle E. Oil Co.'s 1, 8-29-21, sd 915 ft. Morrison & Keefe's 6, 8-30-22, co 1700 ft. McKittrick Hills Oil Co.'s 2, 18-30-22, sd 3250 ft. Ozena Oil Co.'s 1, 27-29-21, dr 1150 ft. Ridge Oil Co.'s 1, 13-30-21, sd 4045 ft.

MON BLUFF—Miocene Oil Co.'s 1, 34-27-20, rig.

NORTH MIDWAY—Richfield Oil Co.'s Mason 5, 6-31-23, abn 3700 ft.

SHALE HILLS—Huntington-Hawthorne's 1,

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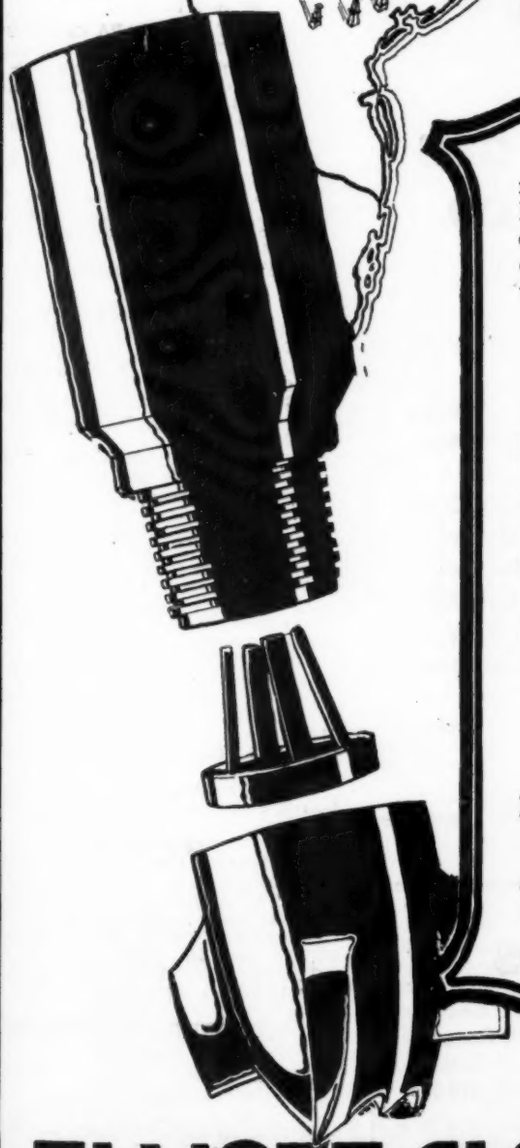

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SUNSET—Fresno-Sunmaid Oil Co.'s 1, 18-11-23, sir 1924 ft; 1, 16-11-24, sd 4200 ft. Raleigh Oil Co.'s 1, 8-11-23, sd 1925 ft.

TEMBLOR HILLS—Forutna Oil Co.'s 1, 28-32-13, sd 2660 ft. Jackson-Harrison's 1, 30-28-20, will deepen from 310 ft. Hovey Hills Oil Co.'s 1, 19-31-22, sd 2540 ft. Painted Hills Oil Co.'s 1, 19-31-22, sd 500 ft.

TEHACHAPI-MOJAVE—C. R. Asmussen's 1, 23-11-11, sd 1510 ft. Crusaders Oil Co.'s 1, 21-10-10, re-cmt 2367 ft. John B. Harding's 1, 5-10-10, sd 1050 ft.

UPPER KERN RIVER—Wing & Skokel's 1, 35-28-28, sd 1050 ft.

UPPER POSO CREEK—R. H. Sayers' 1, 7-26-28, bldg rig.

KINGS COUNTY

KETTLEMAN HILLS — Ahlburg Gasoline Corp.'s 1, 7-23-23, rig. Associated Oil Co.'s 1, 12-23-18, sd 2043 ft. Bolsa Chica Oil Corp.'s 1, 30-23-19, dr 3065 ft. Chanslor-Canfield Midway Oil Co.'s 1, 17-24-19, co 4403 ft, td 4707 ft. General Pet. Corp.'s 1, 4-24-19, dr 2768 ft; 1, 22-26-18, dr 4228 ft. Milham Exploration Co.'s 1, 2-22-17, dr 3600 ft. Hugh McPhail's 1, 13-14-18, dr 2000 ft. Ogden Extension Oil Co.'s 1, 28-23-19, rig. South Coalinga Oil Co.'s 1, 35-24-19, dr 2646 ft.

SANTA BARBARA COUNTY

GOLETA—Barnsdall Oil Co.'s Edwards 1, sd 2215 ft. Berry Oil Co.'s Pomato 1, dr 1825 ft; Cavaletto 1, dr 2323 ft. California Eastern Oil Co.'s Doty 1, fsh 1775 ft. Graham Loftus Oil Co.'s Orella 1, dr 853 ft. A. T. Rekar's La Patera 1, dr 414 ft.

SANTA YNEZ—San Marcos Oil Synd.'s 1, dr 726 ft.

SANTA BARBARA—Henry R. Dabney's Wright 1, sd 135 ft. Channell O. & Dev. Co.'s 1, 22-4-26, dr 5183 ft. Hollywood Oil Corp.'s 1, 35-5-25, sd 1300 ft.

SUMMERLAND — Summerland Oil Co.'s Becker 1, dr 3050 ft.

VENTURA COUNTY

CAMARILLO—Standard's Camarillo 1, dr 5485 ft.

FILLMORE—Sespe Oil Co.'s Smith 2, sd 4003 ft.

HOPPER CANYON—Bishop Buckeye's Union 2, sd 200 ft. Hopper Canyon Oil Co.'s 1, sd 5005 ft.

MOORPARK—E. A. Parkford's Lloyd 1, sd 3477 ft. Shell Co.'s Berlywood 1, dr 4582 ft.

MONTALVO—Standard's Montalvo 1, dr 6769 ft.

RINCON—Chanslor-Canfield Midway Oil Co.'s Hobson 1A, waiting on pipe 6526 ft; Hobson 1B, plugged back from 4900 ft to 4400 ft for prod test. Montecito Oil Producers' 1, 13-4-25, dr 3313 ft. Pan-American Pet. Corp.'s State 1, dr 485 ft; U. S. 1, lcn. Scott Pet. properties' 1, 35-4-25, rigging rotary.

SOUTH MOUNTAIN—Ring Pet. Corp.'s 1, oil showing 3940 ft.

SULPHUR MOUNTAIN—Geiss & Bradford's 1, 21-4-22, dr 1967 ft. Ventura Crude Co.'s 1, 23-4-22, lcn.

SQUAW FLATS—Border Oil Co.'s 1, dr 685 ft.

VENTURA—Associated's Dabney-Lloyd 1, dr 5683 ft. Star Pet. Corp.'s Star-Canet's 1, fsh 5240 ft.

MISCELLANEOUS

SAN MATEO COUNTY—Shell Co.'s 1, 8-6-5, dr 4330 ft; A. & C. 1, 17-6-5, sd 2514 ft.

SANTA CLARA COUNTY—Continental Oil Co.'s Sargent 1, pumped 200 bbls td 2561 ft.

SONOMA COUNTY—Shell Co.'s Murphy 1, 8-5-7, dr 6083 ft.

TULARE COUNTY — Federal Exploration Co.'s Kinsella 1, sd 6225 ft.

SOUTHERN CALIFORNIA

Completion

EAGLE ROCK—
Calwin Oil Co., Eagle Rock 1..... • 617

BOYLE HEIGHTS—Haskell M. Greene's 1, fsh for dr pipe 2752 ft.

CLAREMONT—Claremont O. & G. Co.'s 1, sd 1130 ft.

DAVIDSON CITY—California Well Drilling Co.'s 1, oil sand 6502 ft, will test, td 6620 ft.

DOMINGUEZ — Dominguez Extension Oil Co.'s 1, sd 5510 ft.

DOWNEY—C. F. Ackers' Downey 1, sd 2[illegible] ft.

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While control of gas pressure in drilling a well is largely a matter of heavy mud, mud isn't all, for it has been found that gas cuts heavy mud and forces its way out. By using BAROID, many of the largest producers over the world have found that they can reduce, if not actually eliminate the danger of blowouts.

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Arkmo Lumber Company, El Dorado, Ark.

Thomas E. Robinson, Tulsa, Okla.

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EAGLE ROCK—Calwin Oil Co.'s 1, abn 6127 ft.

EL SEGUNDO—Rider Synd.'s 1, sd 2300 ft. Southern California Drilling Co.'s Matteson 1, sd 4865 ft.

GARDENA—Circle O. & G. Co.'s Pomeroy 1, sd 4130 ft.

HAWTHORNE — San Clemente Oil Co.'s Peck 1, dr sticky shale, some oil and gas, td 3100 ft. Smith Pet. Co.'s Johnson 1, pumping 25 bbls oil 6215 ft.

HUNTINGTON BEACH—Calnon Pet. Co.'s S. & W. 1, dr 4242 ft. Petroleum Securities Co.'s Mills 1, dr 3453 ft. J. E. O'Donnell's Gothard 1, dr 1015 ft.

INGLEWOOD—Allenson & Co.'s Santous 1, sd 3600 ft.

LANCASTER—John B. Harding's La Loma 1, bldg rig.

MAYWOOD—Magnolia Pet. Synd.'s Tweedy 1, re-dr 2700 ft, td 4450 ft, sd.

MONTEREY PARK — Monterey Park Pet. Co.'s Browning 1, rig.

NEWHALL—W. W. Stabler's Castaic 1, sd 3408 ft. Thomason-McCoy's 1, dr 1515 ft.

OLIVE—Standard's C. & J. 1, dr 2750 ft.

ORANGE—C. A. Son's 1, 5-5-9, lcn.

PLACENTIA—Shell Co.'s Allec 1, dr gray sand 2415 ft.

POTRERO—Associated's Cypress 1, sd 4451 ft, test recently showed some oil. California Eastern Oil Co.'s Johnson 1, sd 4820 ft.

PUENTE HILLS—Anchor Oil Co.'s Hudson 1, rigging rotary.

RIVERA—George F. Getty's Tubbs 1, dr 4828 ft.

SAN FERNANDO—Shell Co.'s Mission 1, dr 3595 ft. Joseph Hummell's Sunland 1, rig.

SAN JOSE HILLS—Bardeen Oil Co.'s Didier 3, co 2255 ft. D. & B. Oil Co.'s Amar 1, tecting for prod. td 4380 ft.

SAN JUAN CAPISTRANO — O. K. Carr's Forster 1, dr 3246 ft. Norswing & Halberson's 1, sd 4060 ft.

TELEGRAPH CANYON—Quadra Pet. Co.'s M. J. M. 1, sd 4210 ft.

WATTS—Southwest Pet. Corp.'s Ramsaur 1, dr 2900 ft.

WATSON—White-Behr Consolidated Oil Co.'s Watson 1, rigging rotary.

YORBA—Standard's Y. L. W. 1, dr 3000 ft. Petroleum Securities Co.'s Kraemer 1, dr 1400 ft.

MISCELLANEOUS

RIVERSIDE COUNTY — Corona O. & G. Co.'s 1, sd 1550 ft. L. R. Clark's 1, fsh 200 ft. Hemet Pet. Co.'s 1, fsh for tools 1310 ft. Spindletop Oil Synd.'s 1, sd 2750 ft. Trabuco Oil Co.'s 1, dr hard sand 2415 ft.

SAN BERNARDINO COUNTY—Colton Terrace Oil Co.'s 1, dr 1440 ft. Como Oil Co.'s 1, fsh 2820 ft. Del Rosa Oil Co.'s 1, sd 915 ft. H. & P. Oil Co.'s 1, sd 2150 ft.

SAN DIEGO COUNTY—Cardiff Oil Corp.'s 1, sd 2805 ft. Oceanside Oil Co.'s 1, sd 3210 ft. Southern Oil & Gas Co.'s 1, dr 2360 ft.

EAST TEXAS

Completions

PANOLA COUNTY—
Burk & Humphrey, Waterman 1, Shires sur. . . .. • 2450

SABINE COUNTY—
Humble, Temple 13, J. L. Quinalty son sur . ..... ¶15 1914

ANDERSON COUNTY—Cosden Oil Co.'s Douglas 1, Isaack sur, sd 3717 ft. Humble's Southern Pine B-1, H. Main sur, dr 4574 ft; Southern Pine 2-A, J. Morton sur, dr 4744 ft; Russell 1, Nancy Cannon sur, lcn.

CAMP COUNTY—J. C. Rogers' Boyd 1, R. M. Montgomery sur, rig.

CHEROKEE COUNTY—Humble's Elliott 2, M. Windsor sur, dk; Ragsdale 2, N. Johnson sur, dr 4482 ft; Reynolds Mort. Co. 2, J. Durst sur, dr 440 ft. Magnolia's Summers Est. 1, W. Brewer sur, sd 4430 ft. Panhandle Oil Co.'s Whalen 1, J. Jordan sur, sd 550 ft. Woodmanse Synd's Hall 2, J. Durst sur, sd 800 ft.

CASS COUNTY—Mid-Kansas O. & G. Co.'s Land 1, Potter sur, coring 2832 ft.

HENDERSON COUNTY—Cayton et al's Hoffer & Nash 1, H. Jefferson sur, dr 2432 ft.

HARRISON COUNTY—J. R. Bahan's Eppe 1, James Short sur, set 6-in at 940 ft; Furrh 1, J. Short sur, dr 40 ft. Clark et al's Furrh 1, J. Short sur, testing 1948 ft. Magnolia's Anderson 1, J. Womack sur, dr 60 ft; Trosper 2, J. H. Harrison sur, set 8¼-in at 2695 ft; Tros-

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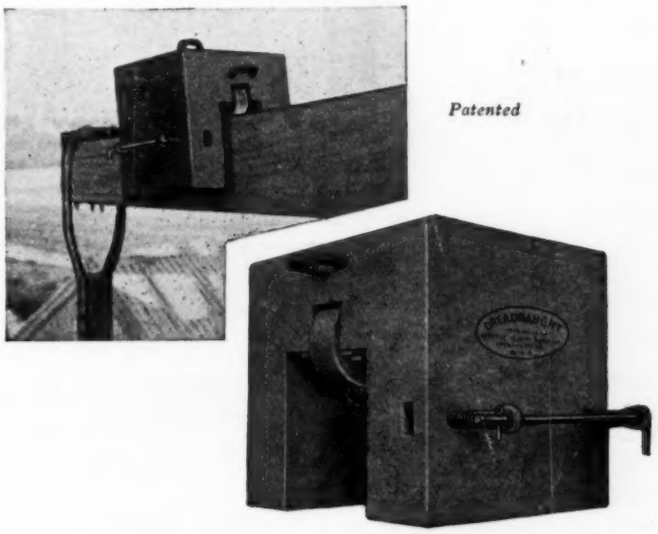

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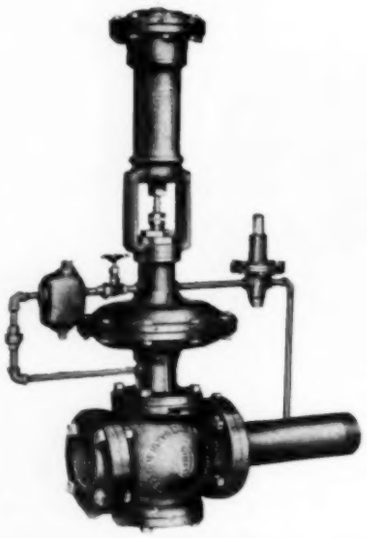

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per 4, J. H. Harrison sur, dk. State Line O. & G. Co.'s Abney 4, E. Little sur, dr 830 ft. Tylong O. & G. Co.'s Cook 2, R. W. Bedford sur, rig.

KAUFMAN COUNTY—Cranfield et al's Nicholson 1, A. Bennett sur, testing 3250 ft.

MARION COUNTY—William Gross' Baker 1, J. French sur, rig.

NACOGDOCHES COUNTY—Stein & Lewis' Birdwell 1, Jose A. Chirino sur, sd 1100 ft.

PANOLA COUNTY—Magnolia's Ferguson 2, Jane Thorpe sur, dk; Baker 2, B. C. Jordan sur, dk; Lewis 6, B. C. Jordan sur, set 6-in at 1912 ft; Steele 10, B. C. Jordan sur, coring 2274 ft; S. Davenport 2, Jesse Dunlop sur, rig; Trosper 1, J. Shandoin sur, rig.

RUSK COUNTY—C. M. Joiner et al's Bradford 1, K. Ximenes sur, rig. Magnolia's Durren 1, Angulla Norris sur, dk. McCurrie et al's Sparks 1, Jesse Goarse sur, dr 1850 ft. Rusk Dev. Co.'s Mathews 1, DeLores Cortinas sur, sd 2330 ft. The Texas Co.'s Schlutz 1, A. Loffton sur, dr 1300 ft.

SMITH COUNTY—Dr. Gaither's Parker 1, Don Thomas Quevado sur, dr 2479 ft.

SHELBY COUNTY—Magnolia's Pickering Lbr. Co. 1, Wm. J. Crane sur, sd 2637 ft. W. M. Sebastian's Pickering Lbr. Co. 1, T. F. Polly sur, 2720.

SABINE COUNTY—Crater Oil Co.'s Mills 2, Anthony Shoals sur, sd 2000 ft. Humble's Temple 14, J. L. Quinalty sur, rig.

UPSHUR COUNTY—S. W. Richardson's Newsome et al 1, A. Butler sur, No. 81, dr 1990 ft; Minor 1, cleaning out with cable tools 3500 ft.

WEST TEXAS

Completions

Company, Well and Location	Initial Production Bbls.	Depth
CONCHO COUNTY—		
Associated Pet. Co., Sam Waring 1-A	*	2617
GARZA COUNTY—		
Pandem Oil Corp., Justice 1	*	2765
JONES COUNTY—		
Gillette & Hickey, M. E. Young 1.	*	2040
STONEWALL COUNTY—		
R. F. Garland & Co., Ward 1.....	*	3054
WINKLER COUNTY—		
Southern Crude Oil Pur. Co., Hendricks 1-B	†	1000

ANDREWS COUNTY — Carter-Zweifel's Cowden 1, co 3500 ft. J. S. Cosden et al's Bedford-Ratliff 1, spd and sd. Deep Rock Oil Co. and Sartain's W. J. Harris 1, elev 3168 ft, sd 375 ft. Geo. Calvin et al's Bedford-Ratliff 1, spd and sd. C. B. McKennon et al's J. S. Means 1, elev 3137 ft, dr 825 ft.

BREWSTER COUNTY—Van McPhail et al's McIntyre 1, co after shot 1000 ft. Mid-Kansas O. & G. Co.'s Turney 1, rig. Wilcox & Anderson's Gage 1, set 10-inch cas 591 ft.

COKE COUNTY—W. H. Brown et al's W. L. Foster 1, sd 425 ft. Danciger O. & R. Co.'s Byrne 1, dr 1075 ft. Lipan Oil Co.'s Conner 1, elev 2045 ft, co 1215 ft.

CRANE COUNTY—Gulf Prod. Co.'s Waldell 2, elev 2744 ft, top salt 1170 ft, top lime 3095 ft, flowing 35 bbls oil 3221-3500 ft. Marland Oil Co.'s Cordova Union 1, driving 10-inch cas 360 ft.

CROCKETT COUNTY—Geo. H. Anderson-McGinley & Marland Oil Co.'s University 1, dr 2025 ft. V. T. Bolin & Co.'s Coates 1, sd 2110 ft. Corbett & Gill's University 1, spudding. W. W. Donnelly-J. D. Younf et al's Pierce 1, elev 2105 ft, fsh 1375 ft; Massie 1, dr 100 ft; Shannon 1, dr 85 ft. Epenauer et al's Noelke 1, spd and sd. Gulf Prod. Co.'s Powell 2-D, dr 1700 ft; G. L. Thompson 1, cem 10-inch cas 512 ft. Geo. A. Henshaw Jr. and Co.'s Noelke-Murphy 1, driving 10-inch cas 240 ft. J. K. Hughes Dev. Co.'s Powell 2-B, sd 2600 ft. Humble & Marland Oil Co.'s Powell 3-B, elev 2727 ft, top salt 1050 ft, dr 2385 ft. James Kelly et al's Todd 1, spudding. McMannon Oil Co.'s Blakeney 1, rig. Newman Oil Co.'s B. C. Clark 1, lcn. Wm. shaffer et al's University 2, elev 2666 ft, top salt 1060 ft, sd 2220 ft. Taylor-Link Oil Co. et al's Powell 1, top salt 1050 ft, dr 2375 ft. P. H. Williams et al's Powell 2, elev 2747 ft, top salt 1055 ft, dr 2280 ft.

CULBERSON COUNTY—James H. Gardner et al's Radford 1, dr 590 ft.

JEFF DAVIS COUNTY—J. K. Hughes Dev.

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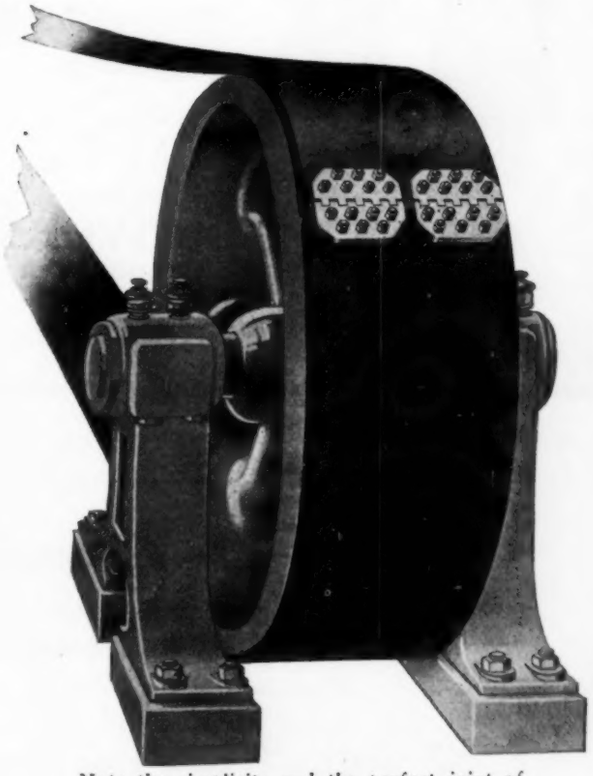

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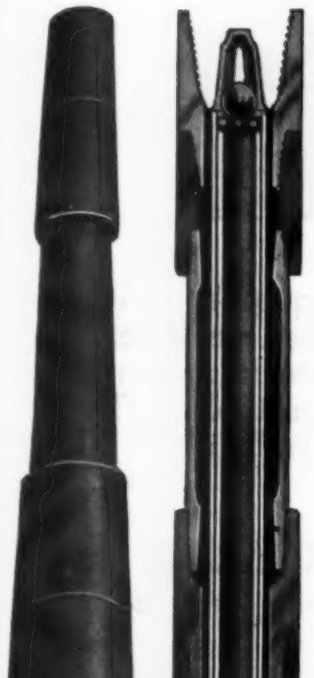

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Co.'s Means 2, spd and sd. Humble O. & R. Co.'s C. Flores 1-A, dr 305 ft.

DAWSON COUNTY—R. R. Penn's Wright 1, elev 2842 ft, top salt 1750 ft, dr 2450 ft.

ECTOR COUNTY—J. S. Cosden and The Texas Co.'s Connell 2-A, sd 3515 ft; Connell 3-A, sd 3545 ft.

FISHER COUNTY—Hucony Oil Co.'s Langford 1, dd co 3258 ft. Marland & Miley Oil Corp.'s W. W. Ammons 1, dr 3285 ft. Sinclair O. & G. Co.'s Farmer-Denise 1, ur 2610 ft. R. W. Rainey et al's Marberry 2, sd 2725 ft. The Texas Co.'s Stephens 1, sd 2302 ft.

GAINES COUNTY—Westheimer & Daube's Forbes 1, cem cas and stdz 3900 ft.

GLASSCOCK COUNTY — The California Co.'s W. B. Currie 1, elev 2694 ft, dr 1185 ft. Frank M. Greene Corp.'s Oxshear 1, elev 2542 ft, top salt 1245 ft, top lime 2852 ft, dr lime 3145 ft. Landreth Prod. Corp.'s Houston 1, elev 2611 ft, top salt 1410 ft, dr 3405 ft. Magnolia Pet. Co.'s Roberts 1, dr 95 ft. World Oil Co. et al's McDowell 1, elev 2545 ft, top salt 1180 ft, dr 3020 ft.

TOM GREEN COUNTY—Fitzgerald & Taliaferro's Bennett 1, dr 1115 ft. L. N. Nickey-Dullahan et al's Jacobs 1, sd 630 ft. Tulsa Oil Co.'s Adamas 1, sd 735 ft.

HOCKLEY COUNTY—World Oil Co.'s Ellwood 1, dr 410 ft.

HOWARD COUNTY—The California Co.'s Fisher 1, dr 295 ft. W. W. Donnelly-Mann & Freel's Martin 1, elev 2552 ft, top salt 960 ft, dr 2535 ft. F-H-E Oil Co. et al's Roberts 1-B, sd making two million ft gas and 5 bbls oil after shot 1820-40 ft, td 1915 ft. L. C. Harrison et al's Roberts 2, cem 6⅝ cas and stdz 1578 ft. Geo. A. Henshaw Jr. & Co.'s Eason-Settles 1, co after shot 1356 ft. Magnolia Pet. Co.'s Mary-Chalk 6, ur 998 ft; Mary-Chalk 7, dr 975 ft; Kelly-Chalk 6, dr 1410 ft; Kelly-Chalk 7, dr 65 ft; Sloan-Chalk 5, ur 800 ft. Marland Oil Co.'s Clay 1-E, sd repairs 855 ft; Jones 1, sd 500 ft; A. M. Fisher 1, elev 2740 ft, dr rotary 1610 ft; A. G. Haynes 1, dr 785 ft. Marland & Texon Oil & Land Co.'s Guitar 1-A, rig; Connelly 1, rig; Quinn 1, top salt 1190 ft, dr 2410 ft; W. R. Settles 2, swabbing oil in pay 1225-61 and 1270-82 ft. Peer Oil Corp.'s C. D. Read 1, spudding. Vitex Oil Co.'s Clay 1, dr 1385 ft.

JONES COUNTY—E. P. Campbell et al's Herndon-Poore 1, sd 3009 ft. Cole-Hart et al's Joe Dillard 1, spd and sd. R. F. Garland & Co.'s Glynn 1, fsh 1907 ft. Hutson & Weaver's Smith 1-A, sd 800 ft. Kirk & Brewer's J. N. Milsap 1, dr 2945 ft. W. G. Stough et al's Willis 1, fsh 1740 ft. Swensondale Oil Co.'s Canton 1, sd 2505 ft. J. L. Tomberlin et al's Clapp 1, fsh 2270 ft.

KING COUNTY—Gibson-Johnson et al's Burnett 1, elev 1715 ft, ur cas 3380 ft. The California Co.'s Spikes 1, elev 1719 ft, dr 2780 ft. Humble O. & R. Co.'s Pitchfork 1, spudding. Mid-West Exploration Co.'s Patton 1, elev 1706 ft, ur 2940 ft. Sinclair O. & G. Co.'s Burnett 1, elev 1804 ft, sd hfw 3265 ft. Pattison et al's Patton 1, elev 1616 ft, co 2240 ft. White Eagle O. & R. Co.'s Burnett 1, elev 1818 ft, ur 3075 ft.

LOVING COUNTY—Kingwood Oil Co.'s Moore 1, elev 3120 ft, top salt 1210 ft, dr 4095 ft. Owen-Sloan et al's Johnson 1, elev 2934 ft, sd 930 ft.

MIDLAND COUNTY — Orbit Oil Co.'s Moreland 1, sd 150 ft.

MITCHELL COUNTY—Thraves Oil Corp.'s C. Way 1, elev 2126 ft, top lime 2140 ft, td 2509 ft. Thraves & Tex-O-Kan Oil Co.'s W. F. Sanders 1, elev 2253 ft, top lime 2245 ft, cem 6-inch cas 2675 ft.

NOLAN COUNTY—John Winemiller Corp.'s Booth 1, ur 6-inch cas 2550 ft. Henry Zweifel et al's Neal-Longbotham 1, dr 2750 ft.

PECOS COUNTY—Aallsman-Bell et al's Pecos River Bed 3, lcn. Geo. Anderson et al's Srebino 1, machine. Buell-Hagan et al's Batchelor 1, elev 3136 ft, fsh 2740 ft; Jasper 1, elev 3307 ft, fsh 1037 ft. The California Co.'s Smith 1, dr 65 ft; Yates 2, 3 and 4, rigs. Diamond Pet. Co.'s Blackstone-Slaughter 1, lcn. T. R. Cowlet et al's J. C. Trees 1, elev 2545 ft, top salt 2305 ft, sd 3335 ft. M. C. Dibble et al's Bonebrake 1, sd 500 ft. Bob Elmore et al's Manly Holmes 1, elev 2176 ft, top salt 335 ft, sd showing sulphur water, oil and gas 1517 ft. R. F. Garland & Co.'s El Paso Fee 1, elev 3264 ft, top lime 1950 ft, td

in water 2530-50 ft. Gulf Prod. Co.'s Smith 1, dr 725 ft. Geo. Henshaw Jr. & Co.'s Schimmel 1, lcn. Humble O. & R. Co.'s Smith 1, machine. Marland & McMan O. & G. Co.'s Yates 2, 3, 4, 5, lcns. Mazda Oil Co. and Savoy Oil Co.'s Smith 1 and 2, lcns. Mid-Kansas and Transcontinental's M. A. Smith 1, machine; Smith-Taylor 2, machine; Yates 8-A, dr 100 ft; Yates 4-B, lcn. Olean Pet. Co.'s G. A. Harral 1, rig. Red Bank Oil Co.'s M. A. Smith 1, elev 2706 ft, top salt 850 ft, top lime 1471 ft, flowing 365 bbls oil daily 1581-1621 ft; Smith 2, lcn; McKenzie 1, elev 3279 ft, dr 2875 ft. Roxana Pet. Corp.'s J. H. Triplett 1, rig; Smith 1-A, rig. W. R. Shankel et al's Yates 1, elev 2190 ft, top salt 425 ft, sd 1479 ft. Simms Oil Co.'s Devlin 2, dr 300 ft; Smith 1, dr 170 ft. Texon Oil & Land Co.'s Yates 2, sd 1754 ft. Transcontinental Oil Co.'s Blackstone-Slaughter 1, spudding.

PRESIDIO COUNTY — Hadlock-Miller et al's Tootle 1, elev 2912 ft, set cas 2835 ft. Pinto Canyon Oil Co.'s Field 1, lcn.

REEVES COUNTY—Exploration Co.'s Kinney 1, elev 2847 ft, spd and sd. D. R. Thompson et al's Eddins 1, ur 1126 ft. World Oil Co.'s Duff 1-A, elev 2753 ft, top salt 1940 ft, fsh tools 3655 ft.

RUNNELS COUNTY—Dutton-Sillix-Hill & Ladd's R. M. McMillian 1, flowing 25 bbls 42 gravity oil daily 2541-45 ft. Noble O. & G. Co.'s Simms 1, dr 1805 ft.

SCHLEICHER COUNTY — Thos. Gray et al's Robinson 1, dr 2320 ft.

STERLING COUNTY—Bill Little et al's Fisher 1, dr 1475 ft. G. B. Orr et al's N. Read 1, sd 1390 ft. P. H. Williams et al's Clark 3, dr 955 ft.

STONEWALL COUNTY—Peer Oil Corp. & Producers Oil Co.'s R. P. Morrow 1, dr 1500 ft.

TAYLOR COUNTY—A. J. Brown Producing Co.'s Henslee 1-A, elev 2010 ft, sd 1980 ft. Morrison-Thompson's Rose 1, co 2539 ft. Owen-Sloan et al's Latimer 1, dr 2590 ft. Roeser-Pendleton Inc.'s Sam Butman 1, dr 1530 ft. World Oil Co.s' Griffith 1, dr 3645 ft.

TERRELL COUNTY—W. W. Donnelly & Big Bend Oil Corp.'s Bassett 1, lcn.

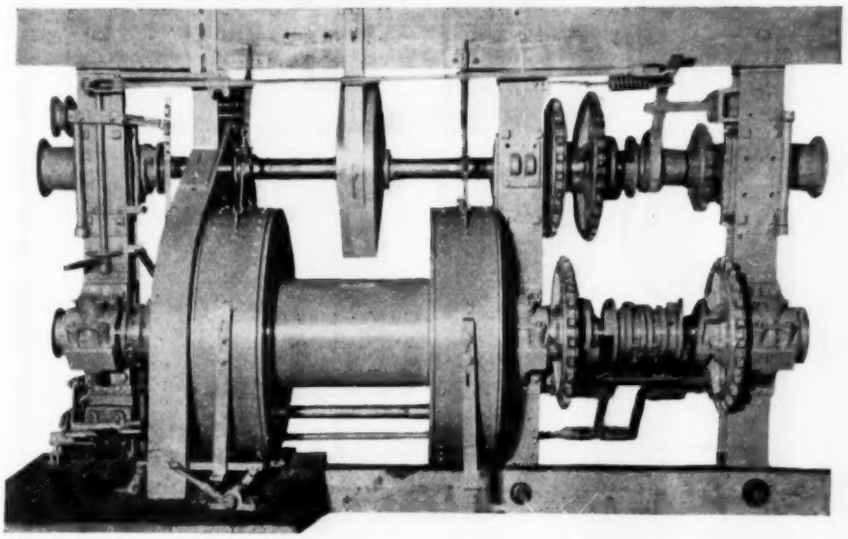
TERRY COUNTY—Kingsland Oil & Potash Co.'s Brownfield 1, dr 2280 ft.

UPTON COUNTY—J. M. Hickey et al's Gormley 1, elev 2358 ft, top salt 472 ft, dr 1265 ft. Marland Oil Co. and Levi Smith's University 1, elev 2672 ft, top salt 1275 ft, top lime 3195 ft, dr 3725 ft. Wise & Jackson's J. H. Porter 1, elev 2589 ft, top salt 1370 ft, dr 2935 ft.

VAL VERDE COUNTY—Douglas Oil Co.'s Sellars 1, sd 3010 ft. Magnolia Pet. Co.'s Whitehead 1, dr 3025. S. A. McCaskey's Sellars 1, sd 3503 ft. O. O. Owens et al's Mills 1, sd making gas 2801 ft. E. T. Williams et al's Holman-McNutt 1, sd 2940 ft.

WINKLER COUNTY—Amerada Pet. Corp.'s J. B. Walton 1, materials. Atlantic Oil Prod. Co.'s Grisham-Hunter 1, elev 2814 ft, top salt 1510 ft, top lime 2458 ft, sd 2522 ft; Ida Hendricks 1, rig. Arizona Mining & Eng. Co.'s Hendricks 1, spd and sd. Cranfill Bros. Oil Co.'s M. J. Bashara 1, rig. Cranfill-Reynolds et al's Ida Hendricks 1, dr 920 ft. Gulf Prod. Co.'s Hendricks 2, rig; Hendricks 3, elev 2818 ft, top salt 1825 ft, top lime 2540 ft, cem 6-inch cas 2555 ft; Hendricks 4, elev 2818 ft, top salt 1885 ft, top lime 2562 ft, sd 2658 ft; Hendricks 5, elev 2821 ft, salt at 1590-2070 ft, top lime 2443 ft, sd 2505 ft; Hendricks 6, elev 2825 ft, top salt 1575 ft, top lime 2374 ft, sd 2556 ft; Hendricks 7, elev 2826 ft, top salt 1700 ft, top lime 2476 ft, sd 2520 ft. Ed. S. Hill-Ladd & Tidal Oil Co.'s Amburgey 1, top lime 3460 ft, dr 3520 ft. Humble O. & R. Co.'s Grisham-Hunter 1, top salt 1480 ft, sd making gas 2756 ft; Grisham-Hunter 2, dr 685 ft; Hendricks 1, elev 2823 ft, dr by junk 1970 ft. Independent O. & G. Co.'s Grisham-Hunter 1, elev 2816 ft, top salt 1785 ft, sd 2601 ft; Grisham-Hunter 2, elev 2822 ft, cem 6-inch cas and sd 2475 ft; Hendricks 1-B (sec 44) rig. Landreth Prod. Corp.'s Grisham-Hunter 1, dr 1360 ft; Grisham-Hunter 2, rotary rig; Ida Hendricks 1-A, rotary rig. Liner Drilling Co.'s Seth Campbell 1, materials. Llano Oil Co. and Roxana's Scarbrough 1, elev 2943 ft, top salt 1115 ft, co with tools and fsh tools in hole, td 3447 ft. McCullough Oil Co. & Marland Oil Co.'s Tobe Morton 1, elev 2750 ft, top salt 2110 ft, top lime 3262 ft, dr 3360 ft. R. S. Matthews et

Boykin "Greyhound" Products



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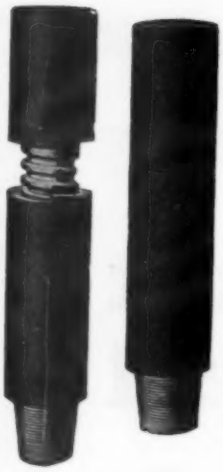

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You are safe from disaster and sure to loosen the fish if you have a Baash-Ross Safety Joint in your string. With this safety joint you can always back off if the fish cannot be pulled. The fishing string being rotated in the reverse direction, releases all the string above the fishing tool.

Made in right or left hand threads that simply can't jam. Construction, materials and finish the finest. Used in all territories and under all conditions, rendering the best of service wherever used. Complete specifications and prices gladly mailed on request.

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F. & S. Wireline Spooler —Eliminates kinking, crawling and irregular winding.

S. & B. Float Valves —Eliminates 50 per cent of the possibilities of accidents in deep drilling.

al's Cowden 1-A, elev 3120 ft, top salt 1623 ft, dr 3150 ft. Murchison-Marland & Cranfill's Grisham-Hunter 1, elev 2807 ft, top salt 1387 ft, top lime 2285 ft, dr 2540 ft. Pure Oil Co.'s Grisham-Hunter 2, elev 2823 ft, top salt 1518 ft, top lime 2388 ft, sd 2572 ft; Grisham-Hunter 1-B, elev 2827 ft, top salt 1395 ft, top lime 2276 ft, cem cas 2284 ft; Grisham-Hunter 2-B, lcn. Republic Prod. Co.'s Grisham-Hunter 1-A, rotary; Grisham-Hunter 1-B, rotary. Roxana Pet. Corp.'s Grisham-Hunter 1-A, spudding; Ida Hendricks 1-B, rotary rig. Southern Crude Oil Pur. Co.'s Hendricks 1-B-T-88, (sec 4) elev 2784 ft, top salt 1720 ft, top lime 2616 ft, making oil and gas 2795 ft; 2-B-T-88 (sec 4) rig; Grisham-Hunter 1-A-T-89 (sec 35) elev 2817 ft, top salt 1219 ft, top lime 2298 ft, stdz 2308 ft; Hendricks 3-C, elev 2816 ft, top salt 1870 ft, top lime 2630 ft, sd 2735 ft; Hendricks 4-C, elev 2814 ft, top salt 1913 ft, top lime 2600 ft, sd 2740 ft; Hendricks 1-F, (sec 33) elev 2817 ft, stdz 2529 ft; Hendricks 1-A-3-T-67, (sec 4) top salt 1540 ft, dr 1775 ft; Hendricks 2-A-3-T-67, (sec 4) rig; Hendricks 1-B-T-67, (sec 44) junked 1000 ft; Hendricks 1-C-T-88 (sec 28) rotary rig; Grisham-Hunter 3-A-T-68, spudding. Texon Oil & Land Co.'s Grisham-Hunter 1, (sec 41) elev 2824 ft, top salt 1610 ft, top lime 2320 ft, trying to set cas in big gas at 2814 ft; Grisham-Hunter 2-A, rig; Grisham-Hunter 1-B, (sec 45) and 2-B, rigs. White Eagle O. & R. Co.'s Leck-Collins 1, elev 2830 ft, co 1875 ft.

SOUTHWEST TEXAS

BROOKS COUNTY—The Texas Co.'s Lasater 3, Gyp Hill, dr 3397 ft.

CALDWELL COUNTY—Radcliff et al's New 1, 7 miles ne Luling, dr 2615 ft. Murchison et al's Copeland 1, Dale, dr 550 ft. Weinert's Taylor 1, Dale, dk; Wheelock & Collins, Dale, lcn. Atlantic-Morgan's Moore 1, Dale, dk; Ostein 1, dk. Sun's Beaty 1, Dale, dr 1600 ft; Tally 2, dr 2107 ft.

DUVAL COUNTY — Schlissinger et al's Moody 1, dr 1904 ft, rock.

HIDALGO COUNTY—Queen City O. & G. Co.'s American Land & Drilling & Irrigation Co. 1, n Mercedes, dr 2176 ft, sandy shale.

MAVERICK COUNTY—Rycade's Sullivan 1, dr 4880 ft; Chittam 1, dr 5630 ft. Johnson et al's Wipff 1, dr 1365 ft, blue shale. Ryan Consolidated's India Land Co. 1, 24 miles se Eagle Pass, sd 2210 ft.

SAN PATRICIO COUNTY — Davis-Pickett et al's Cage 1, dr 2995 ft. Houston Oil Co. and Sun's Ragsdale 1, lcn; Steele 1, dr 1958 ft.

STARR COUNTY—Milham et al's Salinas 2, dr 4906 ft, shale. Deckle & McCarley's Garcia 1, dr 1098 ft. T. G. Folz's Salinas 1, prep to spud.

VAL VERDE COUNTY—East Del Rio's Weatherbee 1, dr 3190 ft. Owens et al's Mills 1, sd 2801 ft. Williams et al's Holman 1, sd 2940 ft. Douglas et al's Sellars 1, sd 3010 ft. Bendum Trees Sellars 1, dr 3640 ft, blue and gray lime. Independent Operator's Whitehead 1, to resume drilling 3900 ft. Magnolia's Whitehead 1, fsh 2850 ft.

WEBB COUNTY—Newton Drilling Co.'s Bruni dr 2312 ft. Trussel et al's Bruni 1, prep to spud. Magnolia's Benavides 1, dr 2348 ft.

TEXAS GULF COAST

Completion

JEFFERSON COUNTY—
Houston Oil Co., Fitzhugh 2 ..... * 4250

AUSTIN COUNTY—Humble's Gotosky 1, Raccoon Bend, dr 1114 ft, w sand.

BRAZORIA COUNTY—Roxana's Pabst 2-A, Clemens Dome, dr 6245 ft, shale and shell; Allen Bernard River 1, Allen Dome, sdtrk 4901 ft; Allen 4, Allen Dome, dr 4924 ft, hard sand and lime, gassing; Randon 1, Allen Dome, wtg on orders. Danscinger Oil Co.'s Bartlett 1, 3 miles w West Columbia, lcn. Pure-Humphreys' Armstrong 1, Stratton Ridge, prep to test, oil sand, 4421 ft td. Associated Oil Co.'s Sonburn 1, Stratton Ridge, dr 4040 ft, rock. Gulf's Perry 2, Stratton Ridge, dr 3650 ft, sand and boulders.

FORT BEND COUNTY— Gulf's Trone 4, Long Point, dr 992 ft, sand rock. Sun's Kuparek 1, dr 929 ft, sandy lime; Farmer 3, Boling, hard sand coring, 2714 ft, gas show. Gulf's

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The sturdy, compact construction, coupled with quantity production enables us to sell these at a lower price than most bits.

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The 4 blades at a 90 degree angle cut a clean hole, the auxiliary blades act as a guide and keep the hole straight.

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Direct circulation from the four circulation holes prevents balling up and cools the bit, thereby lengthening its life.

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Bits cut until worn out, making more hole per change of bit and saving time ordinarily lost in pulling pipe to change bits.

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E. O. Nentwig . . . . . Phone No. 876
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McCamey—
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All Pioneer Oil Well Shooters

Beard 1-A, Long Point, dr 2121 ft, shale and sand.

HARRIS COUNTY—Dr. P. S. Griffith's Fee 2, 12 miles n Houston, sd. Juanita Oil Co.'s Kitsman 1, 3 miles n Cypress, sd. Humble's Warren 1, Hockley, dr 3947 ft, no show.

JEFFERSON COUNTY—Gulf's Bordages 1, Fannett, dr 6400 ft, shale and lime. Beaumont Oil & Prospecting Co.'s Tyrrell 1, 3 mi nw Beaumont, dr water well. J. O. Davis et al's Gladys 1, Spindle Top, coring sand, 3994 ft. Southern Spindle Top Oil & Dev. Co.'s Young 1, 1 mi w Nederland, sd. Jim McMurray's Crosby 1, 5 miles ne Port Arthur, hauling mud.

LIBERTY COUNTY—Harrison Oil Co.'s Quintette 2, N. Dayton, ru. Judge Titwell et al's Gardner 1, 5 miles e Davis Hill, dr 2750 ft, gumbo and lime.

MATAGORDA COUNTY—Gulf's Sanborn 1, Hawkinsville, dr hard sand 4460 ft. Matagorda County Dev. Co.'s Hawkins 1, Bay City, dr 1510 ft, sand and lime. Rycade-Houston Gulf Gas Co.'s Sisk 2, Markham, dr 2348 ft, sand, gas show.

MONTGOMERY COUNTY—Brain et al's Fitch A-1, 3 miles e Spring, sd 2170 ft. Beard et al's Beard 1, 15 miles e Conroe, sd 1210 ft.

WHARTON COUNTY—Ingram Prospecting Co.'s Mensing 1, Boling, sd.

SOUTH LOUISIANA

Completion

Company, Well and Location	Initial Production Bbls.	Depth
CAMERON PARISH—		
Yount-Lee Oil Co., Black Lake 4, Hackberry	*	4007

ACADIA PARISH—Yount-Lee's Houssiere-Latrielle 1, Jennings, prep to dr deeper from 2245 ft.

ASCENSION PARISH—United Lands Co.'s 2, Sorrento Dome, dr 1726 ft, sand.

CALCASIEU PARISH—Dr. Hintze's Bechenstein 1, Sulphur Dome, sd. Union Sulphur Co.'s Fee 721, Lake Charles, dr 1733 ft, rock. Newton Dev. Co.'s Dupre 1, Lake Charles, sd 1240 ft. Wilson & Broach's Wilson 4, Edgerly dr 2510 ft, gumbo.

CAMERON PARISH—Pure's Sweet Lake 4, Sweet Lake, prep to set 8¼-inch cas at 5080 ft; Sweet Lake 5, Sweet Lake, dr 4748 ft, gumbo. La. Land & Expl. Co.'s Mallard Bay 1, no report; Sabine Lake 1, no report.

JEFF DAVIS PARISH—Estropal Oil Co.'s Le Doux 2, sd 2980 ft, rock. John Carrodine's Walsh 1, Welsh, dr 1355 ft, sand showing oil.

IBERIA PARISH — Calcasieu Oil Co.'s Schwing A-1, Eagle Point, no report. La. Land & Exploration Co.'s Vermillion Bay 1, no report.

LA FOURCHE PARISH—Gulf's Dibert-Stark-Brown 1, Thibodaux, dr 321 ft, gumbo.

ST. MARTIN'S PARISH—Rycade's Atchafalya 1, resumed dr at 3792 ft.

Standard of New Jersey Organizes New Company

New York—The Standard Oil Company, of New Jersey has filed incorporation papers at Wilmington for the Standard Shipping Company to succeed the companys' marine department. In recent months, a plan has been under consideration for transferring other activities of the company from departments to separate companies. These plans are purely adminstrative in character and do not involve any change in the character of the capital structure policies or personnel of the parent company.

J. W. MacClatchie, president of the MacClatchie Manufacturing Company of Compton, Cal., will attend the International Petroleum Exposition at Tulsa.

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SECOND NATIONAL BANK

HOUSTON, TEXAS

Capital, $1,000.000 **Surplus, $750,000**

"Growing with Houston"

More Than Heavy Duty Rig Required For Deep Drilling

(Continued from page 58)

feet. Last week screen was being set in this well at 3910 feet. No. 50 well was first brought in at 3494 feet, deepened to 3824 feet, and finally drilled to 4222 feet.

Sidetracking was not necessary in any of the wells mentioned.

Rio Bravo generally starts the Pierce Junction wells with 10-inch casing, then reduces to 9¼-inch, and uses 6⅝-inch on top of the sand. Liners are 4¼-inch. Double back pressure valves are used and also double seals on top of the liner.

Four-inch drill stem is used until the sand is reached, but liner is set with three-inch. This practice gives more clearance and is said to cut down the danger of blow-outs.

A bradenhead is used between the 10-inch and the 6⅝-inch casing.

Stelliting Bits

Rio Bravo Oil Company has made Stellited bits standard wherever it operates. Actual records show that footage per bit has been increased from 200 to 300 per cent through the use of Stellite, according to this company.

Other operators in the coast use Stellite or other especially dressed bits also, but so far Rio Bravo is the only company to make it standard on all bits.

Heavy-Duty Machinery

Twin engines, heavy drawworks, heavy rotaries and pumps, high pressure connections, master valves, blow-out preventers, steel derricks set in concrete, 112-foot wooden derricks, heavy pumping equipment, etc., are taken as indispensable when rigging up for a deep well.

Coring

In the deep holes, coring is generally continued after the first sand is encountered.

New Screen Support for Deep Holes

Believing that much of the sanding trouble encountered in both deep and shallow wells in the coast is due to bent screen, H. E. Smith, formerly a field superintendent in the Gulf Coast, has invented what he calls a screen support. This device is said to have performed excellently in a number of wells where it has been tried out, and operators are looking to the device as a solution of some of the sand trouble.

The apparatus consists of a set of slips and a mandrel. When the hole is ready for screen, the support is run in and is used to support or hold up the screen.

It is claimed that the support takes away the danger of damage to the screen when the packer is collapsed. Screen that has been taken from wells sanded up has been found to be as much as two degrees off, which meant that the sand had practically free access.

The Smith Screen Support is to be made by the Texas Iron Works, Houston, Texas.

Abandon Midway Test

Taft, Cal.—The Richfield Oil Company has definitely abandoned its Mason 5, section 6-31-23, in the North Midway district. The test was carried to 3700 feet and failed to show a promising sand at any depth. Several other wells are drilling in the immediate district and the Richfield's abandonment is expected to have a marked effect upon the future location of new wells.

Shell Takes Over Lease

San Mateo, Cal.—The Shell Company has taken over the holdings of the Ashton & Ashcraft interests on section 17-6-5 and will continue to develop the lease. A well had been drilled to 2500 feet on the property. The Shell Company already had extensive holdings on and in the vicinity of section 8-6-5 and now is drilling below 4300 feet.

Deepen Creek County Well

Tulsa.—Nowata Oil & Refining Company's Hill 3, Creek County, was preparing to drill deeper late last week after making 20 barrels from seven feet of pay topped at 3431 feet. This well is producing from the Cromwell sand, and was originally completed as a 100-barrel producer from the Gilcrease sand in December, 1925. Location is in 3-10-8.

"LUBRIKUP"

Oil Well Valve Cups

"LUBRIKUPS" are manufactured in three grades, Hard, Soft and Special Soft. Each grade has labels with words Hard, Soft and Special Soft printed thereon.

"LUBRIKUPS" Hard used in deep wells where pressure is sufficient to expand.

"LUBRIKUPS" Soft for wells of depth up to 2000 feet where cut oil exists.

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LUBRIKUP COMPANY, Inc.

WILLIAMSPORT, PA., U. S. A.

Don't Drill!

before you have tested out your field with the TORSION BALANCE

by the

NORTH AMERICAN EXPLORATION CO.

444 First National Bank Bldg. Houston, Tex.

71 Broadway ~~~~~~~ New York City

Development of Geophysical Science in Gulf Coast Exploration

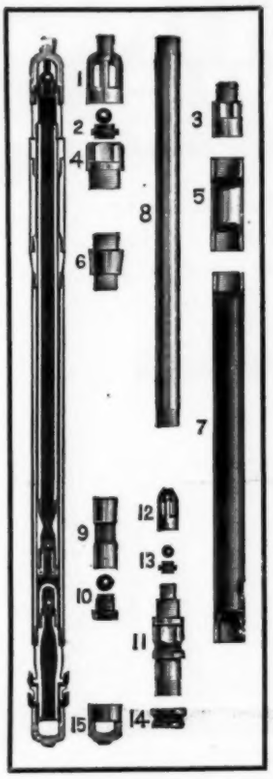
(Continued from page 57)

function as means of transferring the pendulum or microphone, or pendulum-microphone movements to the recording instruments. After months of work which took its toll on the cost of equipment and in some cases in life, the different companies working with these instruments had all developed some form of a field worthy device. At this stage of the game, the laborious work of surveying out lines upon which to shoot and place instruments was eliminated by the introduction of the radio method of transmitting the time of the shot instead of the old method of timing the shot beforehand and depending upon the accuracy of the watches of the different stations. Needless to say, often times shots were fired without being recorded because the operators watch was not exactly with that of the shooters.

Patent Fight

At this stage of the game the sky line of the seimic activities was darkened by a patent warfare which eventually simmered down to the fact that two large consulting in companies took the field on the Gulf Coast as competitors, namely, the "Seismos" G.m.b.H. and the Geophysical Research Corporation, and other companies of consequence came to some sort of an agreement with either one or the other of these companies. These two competitors have exerted every effort to keep abreast of the times. The Geophysical Research Corporation has developed a geophone instrument which can be lowered into the bottom of a lake of water or a swamp and the recording instrument left in a boat which accompanies it. The Seismos people have not gone into this line of development so much but have paid more attention to the development of their radio equipment; their other instruments remaining more or less in the same form.

Both of these two companies are able to find the shallow domes and both are claiming the possibilities of finding deep domes, only they put different depths at which they are sure of their finds. The result of the operations of the last year has been the finding along with the shallow domes many deep domes which will be proven by the drill. These reports of deep domes cannot be regarded with the same surety as the shallow domes because the danger of having mistaken velocities. As is always the case whenever a new phase of the geophysical work on subsurface structures is begun, we must faithfully wait until the drill has gotten to the depths reported and if successful must call for several repetitions before the method can be accepted. In the next year or so no doubt the finding of deep structures and deep salt domes will most occupy the minds of company heads especially if it turns out that the deeper struc-



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Performance of unusual character prompts such comments—why not become familiar with this type of performance? Your dealer will establish contact through his stock.

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THE CHARLES N. HOUGH MFG. COMPANY,
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Products that cut down your underground overhead.

Sectional Portable Buildings for the Oil Industry

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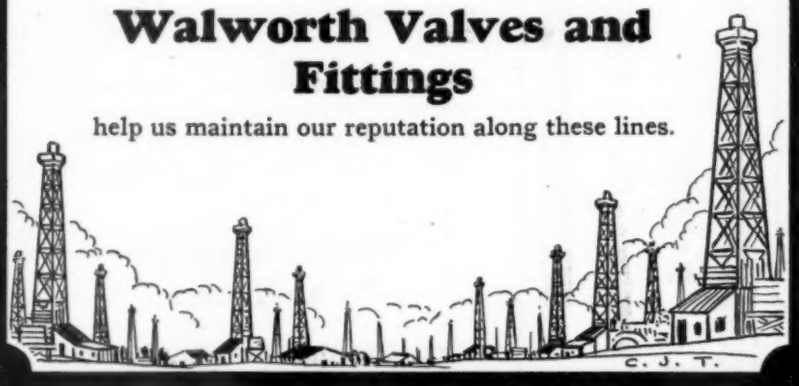

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tures or salt domes will be more prolific in oil production than the host of shallow domes that have been discovered. Whenever this time will arrive, we will still be debating as to how deep to depend on the seismograph and geophone results and whether or not the torsion balance will not take the field in deep dome finding.

Torsion Balance

In the latter part of 1922 the torsion balance was first brought into practical use on the Gulf Coast by the Rycade Corporation under the supervision of Dr. Barton and by the Roxana Petroleum Corporation under the supervision of Mr. van Weelden.

In March, 1924, the first consulting geophysical company made its appearance on the Gulf Coast under the direction of Mr. Hugo Gornick and was organized under the name of the North American Exploration Company. There was no danger of a patent warfare among the different parties in regards to the methods employed, only as to types of instruments manufactured and here so far nothing has happened.

The North American Exploration Company began its first work with the Gulf Production Company and under the management of Dr. Kurt von Muecke carried on a very successful campaign for this company until eventually the Gulf Production Company organized its own torsion balance department in the first part of this year.

During this time other companies either organized their own torsion balance departments or employed some geophysical company. By this time several rival geophysical companies have sprung up specializing in torsion balance work; each having its particular clients.

It is interesting to note that although the torsion balance has a most extensive application on the plains of Hungary by its inventor and was greatly developed in Germany by different companies, it too, first received its greatest application on the Gulf Coast of the two countries, United States and Mexico. Although much was known as to the interpretation of the results of the work, nevertheless, the torsion balance was to suffer many a disappointment along with the seismograph.

The first applications were on detail work on domes and then reconnoissance work was carried on, but the rapidity with which the seismograph or its kindred methods worked, the torsion balance was forced more into detail work about domes or on special assignments.

During the early work, the torsion balance parties had different interpretations for the results they found. It was surprising to them to find out after some time on the Gulf Coast that a torsion balance station set up in the middle of the area above such a dome as the Boling in Wharton County, Texas, that nothing indicating a dome could be found. It was from this work that the idea was developed of scattering out clusters of torsion balance

stations over an area at different distances of a mile or less and thus discover the rim of the domes and then to close in with stations and profiles to define the outline. Another grave mistake made by several torsion balance parties was the working out in great detail of gravimetric differences on small tracts of land before carefully testing out the outskirts with scattered stations and profiles. Several salt domes reported from such work turned out to be local gravimetric differences such as buried gravel beds.

At first upon extensive surveying about salt domes it was found that graviclines near them would take on peculiar twists or turns and the theory gained ground that it was only the finding of another such bend on one or the other limb of such a gravicline in order to find a salt dome. This theory although put aside, served as a stepping stone to the present finding of deep domes by means of the torsion balance. The torsion balance as in the case of the seismograph also must contend with the disturbing influence from the immediate subsurface, but these things have to a certain extent been overcome and within the bounds of certain areas deep structures can be found with the torsion balance.

Gravimetric work has been carried on to a great extent in the Mid-Continent area in Oklahoma and Kansas, on and about Nemaha Mountains or buried ridges, and it has been accepted for the time being that the torsion balance is able to define the outline of the granite floor or some formation closely conforming to its outline.

Armed with this experience, such companies as the North American Exploration Company come out and make statements to the effect that deep salt domes and structures can be found on the Gulf Coast at greater depths than the seismograph or the geophone. There are several deep dome prospects which are awaiting being drilled where the torsion balance and the two methods, the seismic and that of the geophone, have had a hand. Until these reported domes have been really drilled and proven, it is foolish to make great conjectures as to the possibilities of finding deep structures.

The torsion balances of whatever make they were which were first brought on the Gulf Coast were either visual or photographic. It has been a matter of choice among different companies as to the advantages and disadvantages of the different methods. The two most used types in America are the Bamberg and the Suess types. The Bamberg has brought out a new Z balance which is greatly reduced in size and more portable. The Suess factory has come out with a smaller type of balance which can easily be transferred about. The greatest burden with all these types is of course the torsion balance house. Here some very radical changes have been made to make them more portable. In the Haalck type torsion balance manufactured by the

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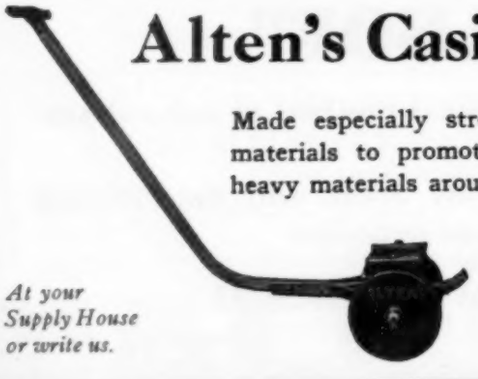

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Exploration G.m.b.H., Berlin, the entire house has been replaced by a housing about the torsion balance proper. Others have contented themselves with the evil of having to pack about with houses but they have tried to make them more portable. As for example the Oertling Company has devised a means of clamping a torsion balance within a cylindrical observation house so that the entire thing can be rolled about on the ground or be transported as a whole without taking down this instrument. Another unique torsion balance house was described in The OIL WEEKLY some time ago in which the inventor wishes to make his house serve as a boat in swampy areas where boats are difficult to obtain. Nevertheless, the older type of equipment is retained by many users of torsion balance and it will be a matter of time until these new improvements have proven or disproven themselves.

Different companies have of course developed different ways of interpreting the results from the gradient pictures. This is usually connected with the amount of experience each has had. Possibly in no other work does the maxim, "Experience is a dear teacher," hold more true.

Magnetic Methods

The magnetometers, instruments used in magnetic work, have had their day in the experimenting fields in the Gulf Coast, but have not met with the success that the other methods have. The first was introduced in 1923 by the Rycade Oil Corporation.

The magnetic method has had its greater application recently in West Texas on the granite ridges where it works very well.

The types of instruments as well as the mode of interpretation of the results have taken different forms with different operators. The simplicity of the instruments as a whole and the ease with which they can be operated, coupled with the fact that these instruments are not as expensive as others, have given the magnetic work a great deal of prestige in such areas where large granite ridges or similar subsurface conditions come close to the surface.

Two types of instruments are on the market. The Bamberg factory in Berlin builds two separate instruments, one for horizontal intensity measurements and one for vertical measurements. The "Exploration" G.m.b.H. in Berlin has combined the two systems in one instrument and this type of instrument has proven successful in several cases.

In a matter of a year, more can be said as to the usefulness of the magnetometer on structures other than the massive granite ridges. Whether the magnetic method will ever be employed for deep structures remains for the future to prove.

Electric Methods

Different attempts have been made on the Gulf Coast and other parts of

the United States to employ some type of electric method. On the Gulf Coast the Roxana and North American Exploration Company made experiments within the last two years. But most interesting of all has been the recent advent of the Elbof Company working for the Gulf Production Company and the Humble Oil & Refining Company with a method calculated to find the oil itself in the subsurface. The results of the Elbof work in the Kingsville field are indeed very interesting. If in the future this electric method can be brought to discover oil in commercial quantities in some virgin territory, a marked advance will have been made in geophysics.

The Elbof method has been employed at different points along the coast and different results have been obtained. It has developed that this method as all other geophysical methods has its limitations. If in the future these limitations can be overcome, then the finding of oil will be a simpler matter.

Little is known as to the activities of the party carrying out electric work for the Gulf Production Company under the direction of Mr. Sundberg. This method is no doubt still in its experimental stages.

Conclusion

The Gulf Coast of North America has been a ground upon which different kinds of geophysical instruments have been tried out with the methods worked out as far as science had gotten at the time of their application. The period on the Gulf Coast has been one in which the products of European laboratories and cheap labor conditions had to be re-adjusted to the breakneck speed at which the American industry demanded its work done. Hence many improvements in the construction of the instruments proper as well as in the ways of interpreting the results were made.

From the side of interpretation of results much valued information has been added to the fast growing application of geophysical work. Geophysicists have learned to stay within the bounds of their past experience and upon reporting some new anomaly have the patience to wait until a well was drilled into it to prove their findings before starting out upon a search, calling their new finds by some peculiar name.

The limitations of the seismic method as well as its kindred methods, the gravimetric, and the magnetic, are pretty well known. Some new application closely paralleling those of today may be brought out. But the application of the electric method for the direct finding of oil has only begun to attract attention and it will be a matter of time and the heaping up of results not only in known oil fields, but in wildcat areas as well, before this method can take its stand with other present accepted methods.

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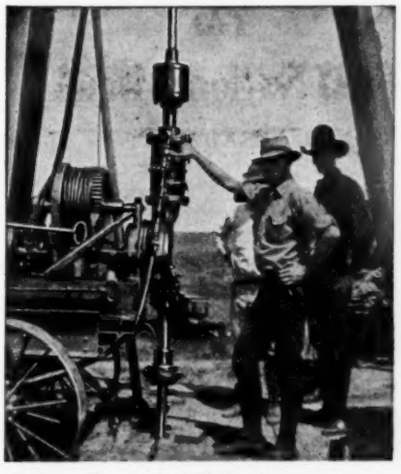

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Isolation of California in Oil World Fast Passing

(Continued from page 50)

tering California during the past five years, as well as a list of the California companies going outside the State during the same period, would be very long and difficult to compile. An effort will be made to show some of the most important moves made by the largest operating companies, however.

The Union Oil Company has been one of the pioneers in the development of black oil in the Rocky Mountains and now has a large production shut in. The Union interests entered Wyoming several years ago and discovered at least one new pool in that State. The company also has developed a large production of lighter oil in the Fort Collins field, in Colorado, which it practically controls. With the development of this production, the Union Oil Company has built up a surplus of crude which compares favorably in quality with the oil the company produces in California.

The Standard Oil Company of New York purchased the entire stock of the General Petroleum Corporation in 1926, thereby establishing an outlet to the Orient. The transaction gave the Eastern company a large California production and the assurance of a steady supply of products when needed.

The Standard Oil Company of New Jersey has secured excellent contact with the California situation through the organization of a holding company to take over the stock of the Tidewater Oil Company and the Associated Oil Company, a California concern. The Standard Oil Company of New Jersey was a minority stockholder of the Tidewater and remains as such in the organization of the new holding company. But it has a close relation with the two companies and undoubtedly has found new outlets through the holding organization.

Interests in Texas

The Standard Oil Company of California, once regarded as a purely local company has secured valuable acreage in Texas. The expansion is in keeping with the progress of the company, which is the largest producer of crude in California.

The Julian Oil Company acquired practically half of the production in the Kevin-Sunburst, Montana, field during 1926 by one purchase. Montana was regarded as almost virgin territory and offered an opportunity to supply a part of the fuel oil necessary for the operation of trans-continental trains in the state. The Julian interests also acquired acreage in Texas.

The California Petroleum Corporation also bought production in the Kevin-Sunburst field and has since become extensively interested in Montana.

The Trans-Continental Oil Company has entered California and is now drilling near Goleta. The company apparently is chiefly interested in the light-

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The Continental Oil Company recently entered California with a vim and has successfully completed several wells in various parts of the State. This company formerly operated only in the Mid-Continent and Rocky Mountain fields.

The Pacific Eastern Production Company, a subsidiary of the Gulf Oil Corporation, recently entered California and immediately began drilling "out of bounds" near Bakersfield. The company startled the oil fraternity six weeks ago with the discovery of both gas and oil in the San Joaquin valley. This organization is expected to carry out an extensive development campaign in certain parts of the State.

One of the newest Eastern arrivals and one which has not yet secured a foothold in California, is the Ohio Oil Company. An office has been opened in Los Angeles and negotiations are under way to purchase production on the Round Mountain structure, which was recently proven productive. The company has not announced its plans but it is expected to launch upon a rather extensive development program.

Dozens of small organizations have entered California on a modest scale and several small California concerns have pioneered in the Mid-Continent during the past five years.

It is impossible to predict where the tendency for the East to come West, and vice versa, will end. Certain conditions will check the tendency for short intervals but there is good reason to believe that Cailfornia and the Eastern States and Mid-Continent will gradually continue to remove the obstacles which have prevailed for more than 20 years.

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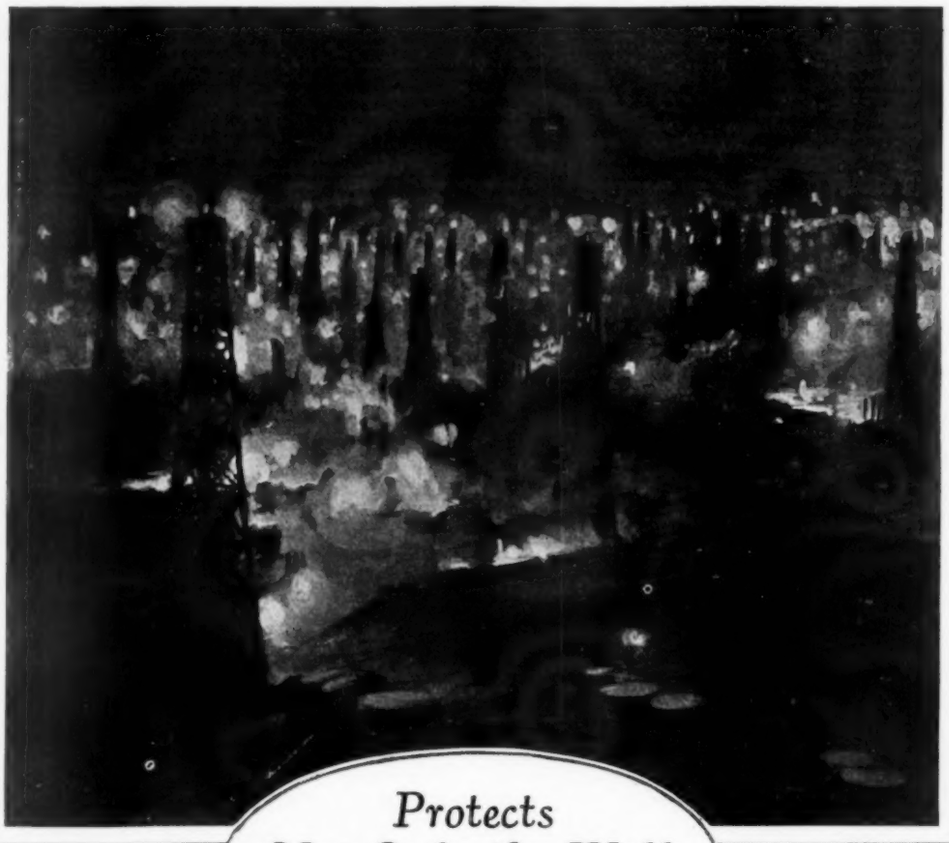

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